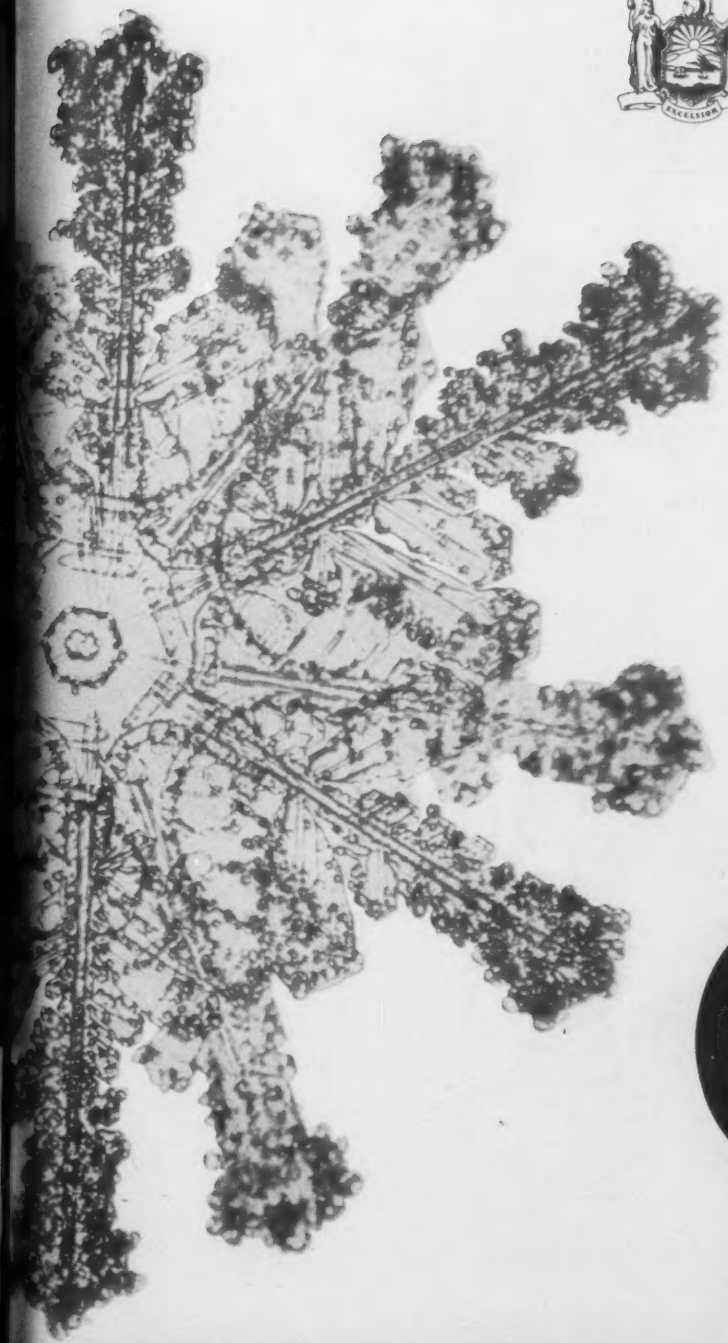
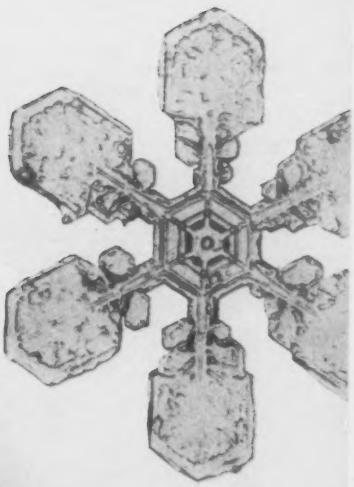
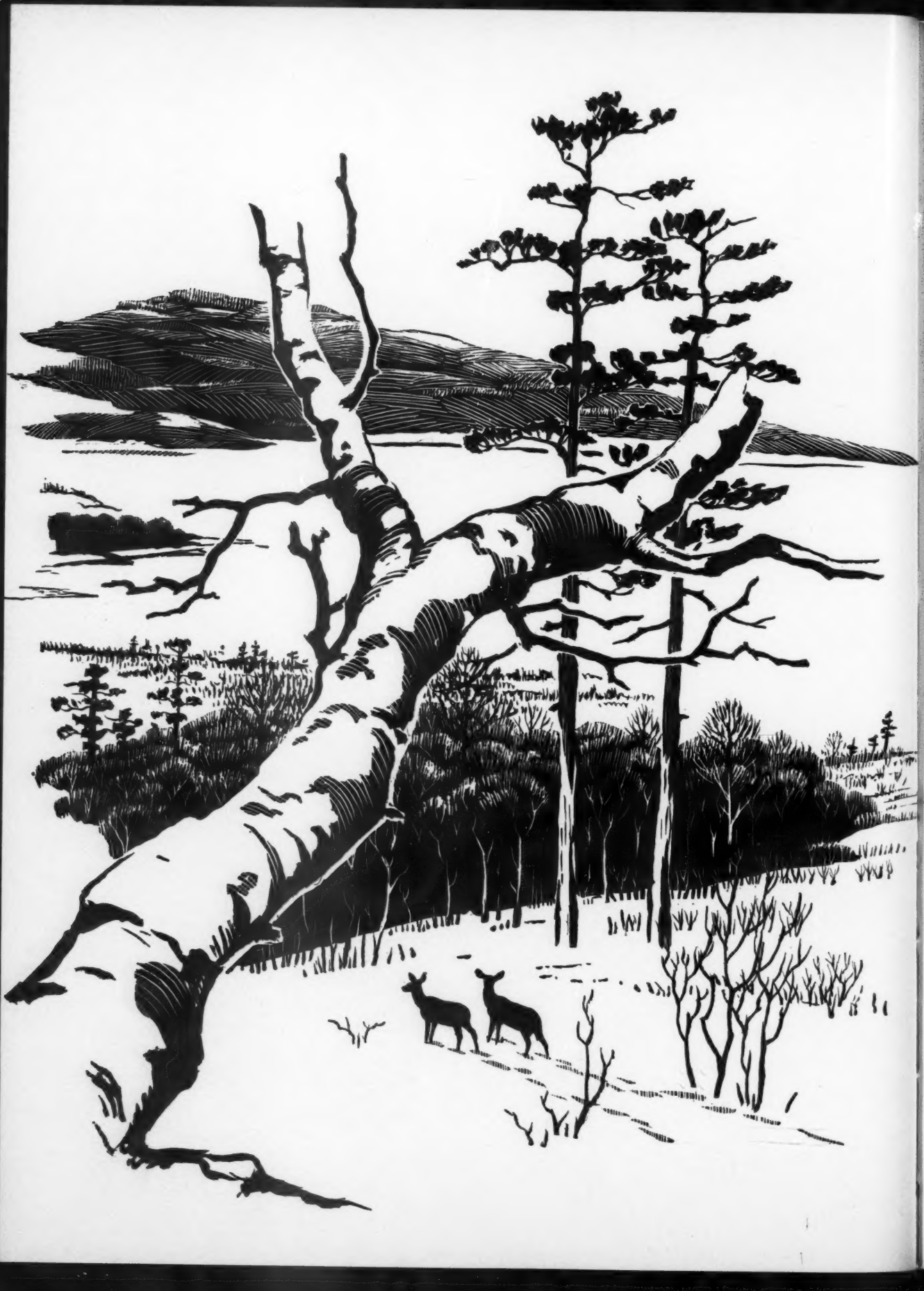
THE CONSERVATIONIST

State of New York Conservation Department — December - January 1980-81







Post-election Preview

We, and we suspect, a majority of some 180 million people, more or less, are right now congratulating ourselves at having survived, once again, the quadrennial upheaval of a presidential election. Considering the total and somewhat staggering effect of living so intimately with the candidates and the issues through the combined impact of press, radio and television, we can, we think, be excused for being a little groggy in our survival. Never, we're confident, has the U. S. citizenry been hit so electronically hard as during the convention and campaign months of 1960.

Shortly, the new administration will take over the executive reins of government, supported with greater or lesser enthusiasm by party members and by what is no nicely described in some parliamentary circles as the "loyal opposition." Confronted with this change, we think it is timely to preview, briefly, this new administration's approach to the problems and responsibilities facing us in the field of natural resources conservation.

To this end, it's helpful to review something more tangible than campaign pronouncements. This is precisely what we've been doing, through the pages of a most comprehensive pamphlet entitled *Resources for the People*, published by the Democratic Advisory Council, 1028 Connecticut Ave. N.W., Washington, D.C. We interpret the prefacing remarks of this report on natural resource issues and programs as indicative of the policy to be followed by the new administration. We hope that we are right, for it outlines comprehensive and constructive programs in water conservation, in fish and wildlife research and management, in air and water pollution control, in acquisition and development for outdoor recreation, in conservation of lands and soils, in forestry, in mineral conservation and in the development of sources of natural resources energy. It's true that the reader, in perusing this booklet, will have no difficulty in determining which political party was responsible for its preparation, but it is heartening to find such clear understanding of natural resource principles and statements of policy. It's true also that if all or even most of the objectives stated in these several areas of conservation are achieved during the term of the new administration, we will not only be much better off but pleasantly surprised in the bargain.

It appears as though it will be an interesting and constructive tour. We look forward with pleasure to keeping tabs on progress.—Editor

THE CONSERVATIONIST

State of New York Conservation Department

Contents

December-January, 1960-61

VOLUME 15 **NUMBER 3**

FIRST COVER		Dr. Vincent J Schaefer
SECOND COVER		H. Wayne Trimm
TREASURES OF THE SNOW	2	Dr. Vincent J. Schaefer
FORESTRY AND THE STATE GRANGE	4	Herbert J. Thomsen
SAMPSON—		
OUR NEW STATE PARK ON SENECA LAKE	5	L. L. Huttleston
THE LEATHERSTOCKING CLUB OF OSWEGO	6	Ralph F. Theurer
OVAL WOOD DISH	8	Roy Irving
LOWER SARANAC LAKE	11	Robert G. Zilliox
SMALL GAME HARVEST—1959-60	12	H. F. Maguire
THE WILDLIFE MANAGEMENT INSTITUTE	14	James B. Trefethen
SENECA BLOWGUNS	16	Austin S. Hogan
THE PINE GROSBEAK	18	David B. Cook
SOME ANIMALS OF NEW YORK	20	Ed. Maunton
ANIMALS AND THEIR TRACKS	24, 25	H. Wayne Trimm
THIS CHRISTMAS TREE BUSINESS	28	W. W. Clingan, E. H. Huber
PLEISTOCENE ANTLERS	31	
THE BACK OF THE BOOK	32	(Scatter Shots, Etc.)
LETTERS TO THE EDITOR	42	(From Our Readers)
NOTES FOR THE RECORD	48	Clayt Seagears
THIRD COVER		Clayt Seagears
FOURTH COVER		Dr. Vincent J. Schaefer

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Treasures of the Snow

TO those of us who know and love the North Country, the word snow denotes many things. Those of us who ski sometimes have mixed feelings about snow. When our cars are bogged down with spinning wheels, or we're struggling to clear paths and driveways around our homes, we may look upon snow as anything but a "treasure!"

However, many years ago, when we were youngsters, our family decided to enjoy as best we could the cold weather of eastern New York. We learned to ski and snowshoe, to skate, toboggan and ride on sleds and later, the large "bobs" on "Durkee's Hill," the "Tramp Path" and the "Devil's Bend."

As I grew older and became involved in science, my interests in snow expanded in many directions. Since the late 1930's, when I discovered a method of preserving snow crystals in plastic castings, I have had exciting and fascinating times in snow country. Although I haven't yet been into the Polar regions, I have worked in air which had been there only a few hours earlier! One of my most unusual experiences, a coupie of years ago, was to look down and photograph the jagged snowcap of Kilimanjaro and in less than an hour to circle the five glaciers on Mt. Kenya where the Equator and permanent snowfields are superimposed!

This experience with snow in East Africa was further enriched a few days later as I again crossed the Equator by 'plane over Lake Victoria at 20,000 feet in a dense snowstorm.

My most exciting experiences with snow occurred late in 1943, when along with several others of the G. E. Research Laboratory, I visited the summit of Mt. Washington in New Hampshire to study some of the electrical properties of snow crystals and snowstorms. Subsequently, I returned time after time during succeeding winters, alone or with one or two scientist friends, as we tried to wrest information from the wild storms of the mountain. Storms with winds well over 100 miles an hour, jagged snow ridges called sastrugi, which plagued the early explorers of the Polar regions, "black" ice on which the bite of my crampons meant the difference between safety or great danger —these all were part of the Mt. Washington adventure.

Some of my studies have taken me to the magnificent snow country of the Swiss Alps, to the vicinity of Davos and Pontresina, where mild weather and nearly wind-free mountains make the ski country something to dream about. Little wonder that, when in the early '30's I climbed Marcy from the upper Ausable lakes by way of Panther Gorge with a friend from the Alps, he was inclined to look with disdain on mountains whose summits had elevations above sea level less than the valley bottoms of some of the Alpine countryside. Not until we hit the savage wind on the cone of Marcy and his climbing skins began to cause trouble on icy patches and his face began to freeze, would he admit that we also had mountains, snow and weather in respectable dimensions!

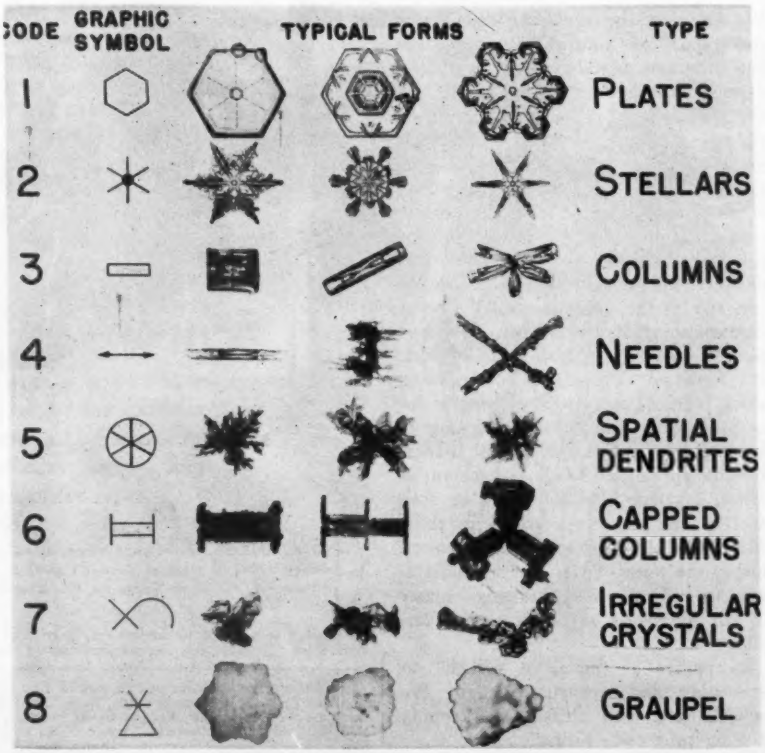
But what of the snow?

Many of our New York storms start in the higher reaches of the atmosphere. At the levels in the sky where more and more of us now travel across country in speedy jets at altitudes of 30,000 to 37,000 feet, where the outside temperatures range from –40 degrees to –50 degrees C. (at –40 degrees the Fahrenheit and Celsius [centigrade] scales read the same), ice crystals form spontaneously whenever sufficient moist air from lower levels is carried there. These ice crystals form the beautiful mares' tails, streamers and other high cirrus clouds common to our New York skies throughout the year. These crystals often form colored halos and sun dogs surrounding the sun or the sun pillars stretching above and below and most often noticed in the morning or evening skies. These ice crystals are in the form of tiny but relatively thick hexagonal plates or the more common hexagonal columns which form the halos.

As they settle into lower, moister clouds they serve to seed them and thus trigger off the snowstorms with which we are all familiar. The beautiful stellar or starlike forms (seen enlarged reproductions, front and back covers) which most of us visualize when we talk about snow crystals, are actually not so common as is generally believed. However, many of them, if examined under a low power microscope, will show a cirrus-type crystal in its center.

A not uncommon crystal form of the early winter in New York State, producing storms which can easily cause terrible traffic snarls, is the wheel and axle or cuff-button type, known in more

Some Types of Frozen Precipitation



Proposed classification of solid precipitation

International Commission on Snow & Ice—ICGU Committee on Snow Classification

by Vincent J. Schaefer, Sc.D.,
State University College
of Education, Albany

Capturing Snowflakes

Haven't you wished, admiring the intricate delicacy of a snowflake on your sleeve or window pane, that there was some way to preserve such beauty? Well, there is a way, discovered by the author of this article. The snowflakes portrayed in gold and silver on our covers, this issue, are from photomicrographs of real snowflakes captured and preserved by Dr. Vincent J. Schaefer.

The snowflake capturing technique involves the use of a resin (polyvinyl formal) dissolved in a solvent (ethylene dichloride). This solution, cooled below zero degrees centigrade, may be thinly coated on a glass plate which is then exposed briefly to the falling snowflakes. One winds up with a fossil shell—an exact replica of the snowflake.—Editor.

scientific parlance as capped columns. These crystals seem to occur after the weather has been cold for several days so that the pavements are cold. The icy crystals in combination with the frictional heating of spinning automobile wheels cause the hill roads to quickly become covered with slick ice with accompanying trouble. A similar storm later in the winter season will generally cause little trouble because by that time, sand and salt are either already on the roads or are quickly applied. Capped columns show great variety and are caused by very complex atmospheric conditions.

The rattle of sleet on south facing windows is another common experience to most of us. The dreaded ice storm often caused by the movement of warm moist air sliding over the top of colder air may also come from rain forming in cold clouds by the collision and growth of subcooled cloud droplets. Whether from either source, the water from drops falling into the cold air near the ground freezes as it contacts trees, wires, roofs, roads and everything else until an icy layer enshrouds all exposed surfaces. Generally, a warming trend is part of the storm system as it moves in from the south and slowly displaces or warms the cold air near the ground. If this doesn't happen, candles, dry ice, fireplaces and other emergency supplies and procedures are resorted to until the public utilities rally their forces and recover from the disaster.

One of the first snows of the winter may be in the form of snow pellets or graupel, to use the commonly accepted German word. These little soft rounded bits of snow are created when a few snow crystals form or fall into moist cloud layers, are tumbled about in them until thoroughly covered with frozen cloud droplets and then fall to the ground below. Such particles are the basic ingredient of thunderstorms, can very often be seen in the center of hailstones, are commonly associated with blizzards and most of the heavy mountain storms of the northern winter.

Part of our studies during World War II was directed toward an attempt to understand the electrical charging of airplanes flying through snowstorms. The airplanes became so highly charged by the breakage of snow crystals striking the wing surfaces and fusilage that they generated a miniature lightning storm, the spark discharges from the airplane appearing as electrical streams called St. Elmo's Fire. These generated so much electrical static noise that the 'plane's radios became practically useless for communication purposes. These effects still raise problems although the introduction and use of short-wave radio has played a major role in minimizing such trouble. The three or more pieces of wicking which are fastened near the wing tips of propeller-driven planes are a reminder of the snow static noise which still may cause trouble during severe storms.

Anyone, who travels in the mountains during snowstorms, is likely to encounter St. Elmo's Fire. A few years ago I was standing on the tip cone of Mt. Evans in Colorado with members of my family. My daughter, Susan, was standing near me and as she turned around her elbow brushed my arm and gave me a shock! I jumped a bit, looked at her and then saw her hair standing on end. I immediately recognized the phenomenon and told her to raise her hand above her head as I did the same. Streamers of electricity danced from our finger tips as a shower of graupel fell around us. I realized the possible danger of lightning and immediately gathered the family into our car which was parked below the cone at the end of the auto road, something over 14,000 feet above sea level. As we left the summit, thunder rolled across the mountain from an active storm several miles away. While St. Elmo's Fire is not always followed by lightning, it is Nature's attempt to relieve the high tension which develops at mountain summits and ridges when the air is electrified.

Our research work at Mt. Washington was rather quickly shifted to studies of aircraft icing when we found the conditions on Mt. Washington to be ideal for such purposes. During one phase of our propeller icing studies, our locale shifted from the White Mountains of New Hampshire to Whiteface Mountain in the Adirondacks, because of the better accessibility to the summit in winter. A helicopter was trucked to the parking lot near the castle and, in co-operation with weather observers from Rensselaer Polytechnic Institute who were then staffing the summit observatory, Air Force technicians from Wright Field and several scientists from Princeton University, we studied the icing properties of the rotor blades on helicopters. Our findings illustrated the dangerous effects of icing of this crucial part of the helicopter and led to a major change in the planned use of such vehicles for activities in Alaska, the Aleutians and Japan.

Once snow has reached the ground, the skier and most others who listen to snow and ski reports, become familiar with the terms powder, breakable crust, heavy snow, wet snow and the like. Then as spring begins to arrive in the lowlands and the cities, the term shifts to granular and corn snow. This is the "ripe" snow of the hydrologist. A measurement of snow density shows that where in the earlier part of the winter the snow density ranged from as low as 0.005 to about 0.1 (the latter value meaning that one inch of snow water is obtained from ten inches of snow), the corn or granular snow shows a density of 0.25 to 0.30. If such snow is examined closely, it is easily seen even by the unaided eye to consist of icy pellets or granules. The microscope or hand lens shows this snow to have lost all of its earlier crystalline shape and each particle now is rounded and icy. This transformation is the result of repeated warming and freezing cycles which have slowly consolidated the fluffy, angular crystals of the snow to the rounded icy grains of much coarser size and having mechanical properties not unlike what might be expected from a heap of steel ball bearings. Corn or granular spring snow provides some of the finest of our northeast skiing and the smart skier saves some of his free time for shirt sleeve skiing in the early spring.

Is it any wonder that the northern areas are favored among those of us who know a bit about the "treasures of the snow!"

Forestry and the State Grange

by Herbert J. Thomsen,
Director of Publicity

Leland D. Smith, Master of the State Grange since 1952, honored by dedication of 50-acre Franklin County forest planted by Juvenile Grangers

BASED on the premise that the State's youth ought to become conservation-minded, leaders of the New York State Grange in 1951 authorized a reforestation program in co-operation with the State Conservation Department. Today, only ten short years from that beginning, thousands of boy and girl Juvenile Grangers, from 5 to 14 years old, are credited with seven major evergreen plantings in the State comprising a total of 690 acres and 574,000 trees including white pine, Scotch pine, Japanese larch, red pine, white spruce and Norway spruce.

The 1960 plantation of white pines is located in Franklin County, in the Titusville and Chasm Falls areas, with 60,000 of the trees established on a 50-acre tract as a living memorial to these young Grangers and to the Conservation Department. A colorful dedication program was conducted this summer (on July 9) at which the new forestry project was memorialized as "The Leland D. Smith Forest," in tribute to Mr. Smith of Brasher Falls in Franklin County, Master of the State Grange since 1952.

State Grangers, most of them conservation-minded through their close proximity to and dependency upon nature's resources, first heard of the proposed Juvenile project at their 1951 State session conducted in Syracuse. The plan agreed upon provided that State would provide trees and designate abandoned and idle farm lands for reforestation purposes. The children of the Grange would raise $1,000 each year to pay for the plantings. The Grange originally contemplated a five-year program, but the activity proved so worthwhile that it now is reaching into its second decade, with a 1961 planting already planned for Oneida County.

The first planting occurred in Chautauqua County where 60,000 Scotch pines were established in 1953. Subsequent plantings were made in 1955 in Allegany County—80,000 red pines; 1956, Chenango County—170,000 white spruces, red pines and Japanese larches, and also Tompkins County—70,000 red pines, white pines, white spruces and Norway spruces; 1957, Lewis County—75,000 white spruces; and 1959, St. Lawrence County—58,000 red pines, Scotch pines and Japanese larches.

There are more than 246 Juvenile Grange units in the State, with a membership exceeding 6,405 boys and girls. They elect officers in keeping with those of the community or Subordinate Granges and maintain a similar ritualism. On reaching their 14th birthday, the Juveniles are invited to become members of the Subordinate Grange, and, thereafter, the County Pomona Grange, the State Grange and the National Grange.

The conservation interest they have developed as Juvenile Grangers prepares them for an emphasis on the subject at the state and national levels.

At last year's 87th annual session of the adult Grange, for example, Mr. Smith established a nine-point program which he urged should "very definitely include a decision to work as closely as we can with our State in the matters of conservation of soil, water and forest resources."

"Conservation," he said, "should be one of the great concerns of the Grange. Our organization must be vitally interested in the conservation of soil and water because both of them are of great importance to both rural and urban people. Farmers cannot grow crops without them. Cities cannot exist without crops and water."

Sampson

Our New State Park on Seneca Lake

by L. L. Huttleston,
Assistant Director,
Division of Parks

IN a recent ceremony at the State Capitol, Governor Rockefeller delivered a check to the Federal General Services Administration for $500,000 and accepted a deed from the federal authorities for 1,251 acres of the former Sampson Air Force and Naval Base on Seneca Lake in central New York to be used for park purposes. This transfer culminated a twelve-year struggle to obtain a major portion of this big Finger Lakes military base as a State park.

This effort began in 1948 when the Navy first considered abandonment of its training station at Sampson after World War II. While emergency post-war housing and education uses of the base were being liquidated, the State Council of Parks began negotiations with the Navy Department for a long term lease. The transaction was nearly complete; in fact, lease documents were partly signed and in Washington for final execution when the needs of the accelerated training program incidental to the Korean War led the Air Force to claim the property as a training station.

The park system never lost interest in the area, although it continued in active military use for several years. In 1957, on information the Air Force was considering official abandonment of the base and transfer to the General Services Administration as surplus, the campaign to obtain use of the base for park purposes was renewed. During the 1958 session of the Legislature, the Division of Parks obtained an appropriation of $100,000 in anticipation of transfer under Federal Act 616, 80th Congress. Upon official declaration of surplus, the park system, acting through the Finger Lakes State Parks Commission which had territorial jurisdiction, made formal application for the property in July, 1958, excluding the warehouse area and various military exceptions.

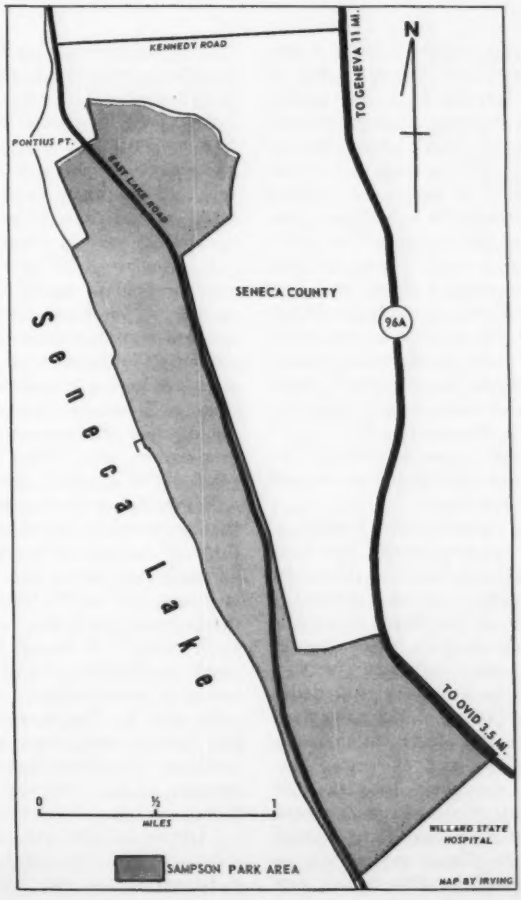
During the fall and winter of 1958-59, several adjustments were made to the boundaries included in the application, for the purpose of excepting more area which might interest private buyers. This resulted in an eventual application reduced to slightly over 1,000 acres. Meanwhile, General Services Administration and the National Park Service were conducting the appraisals and inspection required under the law to certify the suitability of the area for park purposes and establish the value for transfer.

Considerable local controversy delayed the completion of the transfer during 1959. Many local officials hoped to see more of the base utilized for commerce and industry. In response to this, General Services Administration advertised the entire base for public sale early in 1960, breaking it into 12 parcels to invite broad bidder interest. While this included the area of the still unapproved State park application, the State did not participate in the bidding. The results of the bidding were disappointing to those who had visualized a rush to commercial development, although two interior parcels were sold to private parties.

At this point, direct negotiations were resumed. Representatives of Governor Rockefeller joined State fiscal officers and park officials representing Conservation Commissioner Harold G. Wilm and State Council of Parks Chairman Robert Moses in conferences with the General Services Administration to obtain approval of the park application and agree upon a price. An additional $160,000 towards the purchase was appropriated in the final days of the 1960 Legislature.

Finally, in mid-summer of 1960, an offer by the federal government to sell at $500,000 was accepted by the State. This offer also included restoration to the State's application of much of the acreage that had been deleted as possible industrial potential so that the 1,251 acres finally transferred was close to the original State application of two years before.

Throughout the negotiations, the State held firmly to the stand that the three miles of Seneca Lake shore line should go into public ownership and use. The State has now taken possession. Arrangements for demolition and clean-up are under way. To park and conservation people, the great recreational capacity of this extensive shore line is worth all the wearisome negotiations and more. While it came ahead of the proposed park bond issue, Sampson represents the type of need and opportunity that the bond issue is designed to meet.



The Leatherstocking Club

by Ralph F. Theurer

IT all began in Leng's Hotel a hundred years ago. There, in the village of Oswego, on a March night in 1860, a group of men gathered in the lamp and fire-lit tavern room to talk of what could be done to curb the lawless shooting of game and preserve the dwindling wildlife. There was general agreement that it was getting pretty hard to take a deer when one was needed; you couldn't shoot one from your front yard any more. And wild turkeys were harder to come by, too. Even the salmon, upon which most families depended, smoked for a winter staple, were harder to net or spear in quantities from the river. Meanwhile, there was a thriving business in pot hunting for the lumber camps and this didn't sit too well with the local sportsmen.

So this was an indignation meeting of a sort, where sportsmen could look back upon the "good old days," quaff a cider and rum concoction (called a stonewall) from flip-top mugs and figure what could be done. What could be done, they decided, was to band together in what they termed a "Vigilance Committee to detect and expose violations of the game laws and to enforce the objects of the association with vigor and efficiency." Enforcement of the game laws in 1860 didn't put much of a strain on the membership of the new club—there weren't many to enforce. There was one act on the books, passed in 1705, which prohibited the killing of a deer except during the period from August 1 to January 1, and provided for a fine of 20 shillings (or 20 days in jail) if caught so doing. But not until 1896 were there any State game laws promulgated by the Legislature. Before that, individual counties were on their own to set up what few restrictions were in effect.

It is not recorded how many poachers were brought to justice by the Leatherstocking's "Vigilance Committee," but it appears that they either exercised their vigilance judiciously or the Leatherstockings were a remarkably upright and virtuous group, for the club records do not disclose one instance of a member ever running afoul of the law or of being rebuked for a minor infraction.

Returning to the business at hand on that memorable March night, we find that six articles of incorporation were adopted and signed by the 20 charter members. These were later recorded with the Secretary of State:

"Article 1. A fee of $1.00 paid annually to the treasurer, shall entitle any citizen to membership.

"Article 2. The funds of the association may be used upon requisition of the president, recording secretary and any member of the executive committee to defray expenses of enforcing the law.

"Article 3. The duty of each of the executive committee shall be to report violations of the laws, with view of enforcement of the same.

"Article 4. The year shall expire on the 31st day of December, and should there be at that time sufficient funds of the association for that purpose, the officials of the association may expend same for a game supper for the members.

"Article 5. There shall be an annual meeting of the members of the association on the first Monday of January of each year, to be publicly notified by the secretary.

"Article 6. The president, or in his absence, either of the vice-presidents, are authorized to call a special meeting."

The original minutes of this first meeting are now a part of the exhibits of the Oswego County Historical Society.

After a lapse of ten days, undoubtedly to allow the members time to recover from the first meeting, the first regular meeting of The Leatherstocking Club was held at the old rendezvous, Leng's Hotel. Here, at this time, additional members were admitted until it included well known politicians and businessmen of the vicinity. F. T. Carrington, first temporary chairman, and John Stevenson, an English sportsman, were chosen as as vice-presidents. Dudley Farrington, an editor, was corresponding secretary; Samuel Beardsley, miller and fleet owner, was recording secretary, and S. R. Taylor, hunter, was treasurer.

The name of the club was undoubtedly inspired by the works of James

# of Oswego

One hundred years ago, on March 17, 1860, in what is now the City of Oswego, the Leatherstocking Club came into being —purported to be the first organized sportsmen's club in this State and the second oldest in the nation.

The accompanying article commemorating the Leatherstocking's 100th anniversary, written by a former officer and longtime member of the club, reviews some of the highlights of those early years as gleaned from the secretary's minutes.—Editor

Fenimore Cooper, some of whose "Leatherstocking Tales" were written in Oswego. The house in which they were written still stands, suitably inscribed with a plaque.

As early as 1876, prominent club members including Judge David R. Brewster; Dewitt C. Littlejohn, one of the first speakers in the State Assembly and owner of vast estates, part of which are now known as the "Littlejohn Tract;" J. D. Hammond, State Senator; A. C. Matoon, Assemblyman; Judge Wright and Max B. Richardson—to list only a few—were active in promoting legislation for the conservation of our natural resources and wildlife. They represented the organization at state conventions where such laws and practices were formulated. And today, still, as in the past, The Leatherstocking Club sends a delegate to this same type of convention, that of the New York State Conservation Council, where its voice is heard in matters pertaining to the same ideals that were fought for so vigorously by the old timers of long ago.

But not all the time in those early days was devoted to enforcement of the law and representing the best interests of conservation before the Legislature. Members took a little time off for trap shooting (live pigeons then) and, as mentioned earlier, sampling such beverages as the stonewall and another concoction dubbed the Colonial flip—an equally sturdy beverage of rum, beer, sugar and molasses, "singed" with a red hot poker. We will assume, there being no notes in the record to the contrary, that the Leatherstockings undertook these trap shooting and tippling activities separately. And then there were contests and competitions. The willingness of the sportsmen to pit their skill against another group is shown in a letter written in the latter part of the last century by the secretary of The Salmon River Club, and addressed to the Secretary of The Leatherstocking Club. This conveyed a challenge to match skills in a live pigeon shoot; the loser—you guessed it—to put on a game dinner for the winner.

Once, back in the early days, this famous old club nearly met its Waterloo, as a legal action, for some reason now obscure, completely exhausted the club treasury. The club, after paying some $600 and losing all its equipment of tents and traps, emerged from this affair with only its name and record book intact. It has had lean years since, too, but always there have been a few to carry its name through and make sure that at least one meeting a year was held and officers elected to keep it alive.

The Leatherstocking Club now has its skeet and trap field, sponsors annual field trials, helps to liberate fish and game and is active in the formulation of laws relative to conservation practices. The voice of its representative is heard at public hearings in Albany and at the annual meetings of the Conservation Council. Once a year it carries out the old tradition of the annual dinner and, while the piece de resistance may not be game, the other accoutrements seem to be quiet akin to earlier dinners.

Yes, the Leatherstockings are keeping abreast of the time. Some four years ago the club purchased 300 acres of farm land a short distance east of the City of Oswego to develop as a land rehabilitation project for wildlife. At the present writing, 40,000 coniferous trees of various species have been planted, including clump plantings of white cedar for deer browse and protection against the elements. Strip plantings of clover, corn, buckwheat and other food-bearing plants and shrubs have been made. Escape lanes of multiflora rose, hazelnut and nannyberry have been planted. Three small marshes for migratory waterfowl and fur-bearers have been bulldozed and a farm pond of about an acre surface area has been completed, which, after the sealing process is complete, will be stocked with suitable fish and opened to the public for fishing.

It is a proud honor indeed for us all that the sportsmen's club to first become conscious of the need to "take a little and leave a little for seed," was born on March 17, 1860 in Leng's Hotel—The Leatherstocking Club of Oswego.

Oval Wood Dish

by Roy Irving,
N.Y.S. Conservation Department

An Old Adirondack Industry That Stays Forever Young

DRIVING north on Route 10 along the east shores of beautiful Tupper Lake and Raquette Pond, destination Tupper Lake Village, one is aware suddenly of an unusual sight in the distance. Unusual, that is, for the kind of country through which you have been traveling the last hour or so—industrial smoke coming from an immense smoke stack bearing the letters OWD. Later on, in the village, you learn that the letters stand for Oval Wood Dish, largest single industry in Franklin County.

"Yes, but the name," you say, "how, why, who ever dreamed up a name like that?" Well, it stems back to a product that hasn't been made for more than thirty years, but the name has stuck. The oval wood dish, the first disposable bulk food container, was scooped out in one thin piece from a solid piece of hardwood and marked the end of the era when people had to take their own crocks, pails or other containers to the local store in order to get some of their purchases safely home.

The story of this company and the wood products it manufactures from the natural forest resources of the surrounding Adirondacks is second in interest only to the history of the community in which its operations have played such a vital role for the past forty-four years. Historians tell us that the first white man known to visit the Tupper Lake area was Sir John Johnson who passed through in May, 1776. He didn't linger there long as he was on his way to Montreal after being chased out of the Mohawk Valley by aroused Colonists.

Twenty years later, while running survey lines for the great Macomb Purchase, Tupper, the surveyor, appeared on the scene and he apparently remained somewhat longer than Sir John—long enough, at least, to give his name to the lake.

The history of the Tupper Lake region is interesting and lengthy; too long to do more than mention its highlights here. It's pertinent to report, however, that the first lumbering operation was begun there about 1850 by the Pomeroy Lumber Company, a Maine concern. In 1889-1890 the first railroad reached Tupper Lake; its first train chugging into the village on July 1, 1890. The advent of the railroad, closely followed by the construction of what was known as the "Big Mill," sparked a boom that increased the census figures of seventeen families in 1889 to a population of 1,051 in 1892. The "Big Mill" was possibly the largest sawmill ever built in New York State and was designed to cut about 300,000 feet of lumber a day. Located near the site of the present grandstand in today's Municipal Park, it ceased operations in 1926 and was torn down four years later after nearly forty years of operation without a serious fire—a record in itself for the lumbering industry. After waiting for more than 100 years for its first railroad, Tupper had its second one only two years later through the efforts of Dr. William Seward Webb. His first train ran through Tupper on Oct. 24, 1892 on its way from New York City to Montreal. Then, in July, 1899 disaster struck and fire leveled just about the entire business section of Tupper Lake Village, destroying 169 buildings in a matter of a few hours. But lumber was cheap and plentiful and, after the initial shock, the citizens were hard at work at reconstruction, making Tupper Lake a far more substantial and better village than before the fire.

And so it was to this colorful Adirondack lumbering community that Oval Wood Dish migrated from Michigan in 1916, after being in business there since 1883. Even then, as now, recognizing the importance of sound forestry practices, the company built for permanence in this region of beech, birch and maple upon which it had to depend for raw materials if it were to exist and prosper. At that time, settling down permanently was unusual for someone in the lumber business. In the case of Oval Wood Dish this was even more unusual in view of the products it was to manufacture—disposable wooden food containers and eating utensils designed to be used once and thrown away.

Purchasing outright or acquiring timber rights on more than 100,000 acres of land in St. Lawrence and Franklin counties, the company began construction of its new plant. Completed in 1918, the plant occupies about sixty acres of ground, seven acres of which are under roof. One building houses the largest sawmill in the eastern United States, equipped, at one time, to saw up to 26 million board feet per year. Realizing that an annual production of this size would exhaust its timber resources and defeat its plan for permanency, the company does not use the sawmill to capacity, but has a production plan using only

a fraction of its potential timber.

Upon its arrival in Tupper Lake, in addition to plant construction, Oval Wood Dish embarked upon a bold plan for logging its timberlands. Up to that time in the Northeast, logs were skidded by horses, and because of the limited amount of "horsepower," logs had to be cut to proper length in the woods. To effect logging economy and efficiency by cutting logs tree length in the woods, a railroad system was installed to haul them out of the woods to the mill and a high line and spar tree system of log skidding was set up to get the long logs to the flat cars. Now, this was a logging operation unfamiliar to the Northeast and labor skilled along these lines was imported from other parts of the country to carry it out. All went reasonably well and as planned and then World War 1 exploded. The imported labor force enlisted to a man and the entire operation collapsed before it could be put into effect. That is why today visitors at the mill may wonder at the mill log pond, obviously much longer than necessary for the logs it accommodates.

Over the years, products have included the original oval wood dish (which has been replaced by a square-cornered, wire stitched hardwood veneer dish), hardwood lumber, commercial veneer, hardwood flooring, wood spoons and forks and ice cream sticks. The production of flooring and commercial veneer has been discontinued and today the emphasis is on hardwood lumber, wood food containers, spoons, forks and, since 1959, laminated bowling pins. Five hundred million wooden spoons alone are produced annually and the chances are that the wood spoon that comes with your cup of ice cream or is included in your picnic supplies brings silent greetings from Tupper Lake.

What was once a white birch tree growing on an Adirondack mountainside is converted into thousands of sanitary flat spoons in a matter of seconds once its number is up at the veneering machine. From a birch bolt to thin veneer in nothing flat, it gets a ride on a moving belt through the stamping machine and presto, there are the spoons. Dropping into boiling water to remove wood sap, they continue through a drying and tumbling machine which also smooths the edges. They are picked up on another moving belt and try to sneak past the eagle eyes and nimble fingers of alert women whose job it is to extract the culls. Most of them make the grade and are then ready to be packaged or shaped and dispatched to all parts of the world.

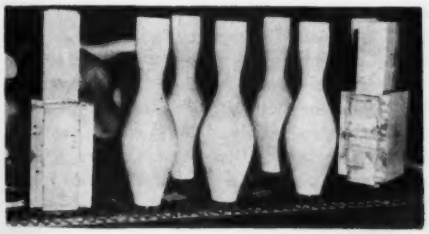
Not being quite as particular as the spoons and forks in their requirements, the food containers can be made from hardwoods other than white birch. However, these log bolts must first be "cooked," as the process is called in the trade. They then endure the knives of the veneering machine, losing their identity as former trees and emerge as veneer to be immediately shaped into container form, wire stitched and dispatched to be packed for shipment.

Adjusting its facilities to the needs of an ever changing market, Oval Wood Dish has been in the business of manufacturing bowling pins since 1959. Like motor boating, the sport of bowling has "exploded" into popularity. Added impetus was given to the sport of bowling by the introduction of the automatic pin spotter. The resultant demand for bowling pins has been tremendous and it seems only natural that a large, going concern already concerned with hard

(Continued on the next page)

Oval Wood Dish main plant at Tupper Lake, N.Y. Occupies sixty acres of ground space; seven acres under roof. Other plants located at Potsdam, N.Y. and Quebec, Canada.

White birch bolts will become thousands of sanitary wood spoons. White birch exclusively is used in the manufacture of spoons and forks. Veneer cores in background will be shipped out as hardwood pulpwood for the paper industry.



Bowling pins before and after. Laminated blocks consist of three center pieces and four "cheeks." Center piece has been bored for weight control before gluing. Quality hard maple lumber is used for bowling pins. Shaped pins are ready for bulk shipment for final processing.

Assembling shaped spoons for packaging and shipment. Labeling, wrapping and packaging is done at the plant. About three hundred men and women earn their living at these various operations.

Hardwood products produced at the Tupper Lake plant. Bowling pins are hard maple. Wire stitched veneer food containers which replaced the original oval wood dish can be beech, birch or maple. All other items are white birch.

maple timber would investigate the possibilities of the bowling pin business. But, this we did not realize until we arrived at the plant to obtain information and photographs for this story. It, therefore, came as somewhat of a surprise to find a large part of the facilities converted to bowling pin production.

We were further surprised to learn that these were laminated bowling pins made from hard maple lumber and assertedly better than those made from a solid maple block. Lumber for the pins is sawed and kiln dried to specifications at the plant. The lumber is then sawed into short pieces designed to make a seven-piece laminated pin. The center piece of the pin has three holes bored in it for weight control which is highly important in producing matched sets. The pieces are then assembled by hand and glued together under pressure. After a period of drying, the as yet unrecognizable block goes through the shaper and emerges in seconds as a rough bowling pin. And emerge is right, for production is at the rate of 3,000 pins a day—a lot of strikes and spares! This is as far as Oval Wood Dish goes with the process, shipping the rough pins out about twice a week by trailer truck to another concern for final processing. Perhaps the ones we saw being made will be soon defying you in your favorite bowling establishment.

With an operation that requires millions of board feet of timber a year there has to be a tremendous amount of mill waste. There is, but you don't see any piles of sawdust or slabs around the mill at Oval Wood Dish. Those familiar with the way veneer is made know that a solid core of wood is always left, but again you don't see many of these around. Reason—these hardwood cores are sold as pulp to the paper industry. Some hardwood pieces cut in convenient lengths are arranged in neat piles in a field along Route 3 and a brisk retail business with campers from the Fish Creek Pond campsites is carried on during the summer months. But the bulk of otherwise unusable mill waste—sawdust, slabs, and cull veneer—finds its way to the boilers and provides the energy to heat and power the plant. Enough electric power can be generated at Oval Wood Dish to service the Village of Tupper Lake in an emergency and provision has been made to do this.

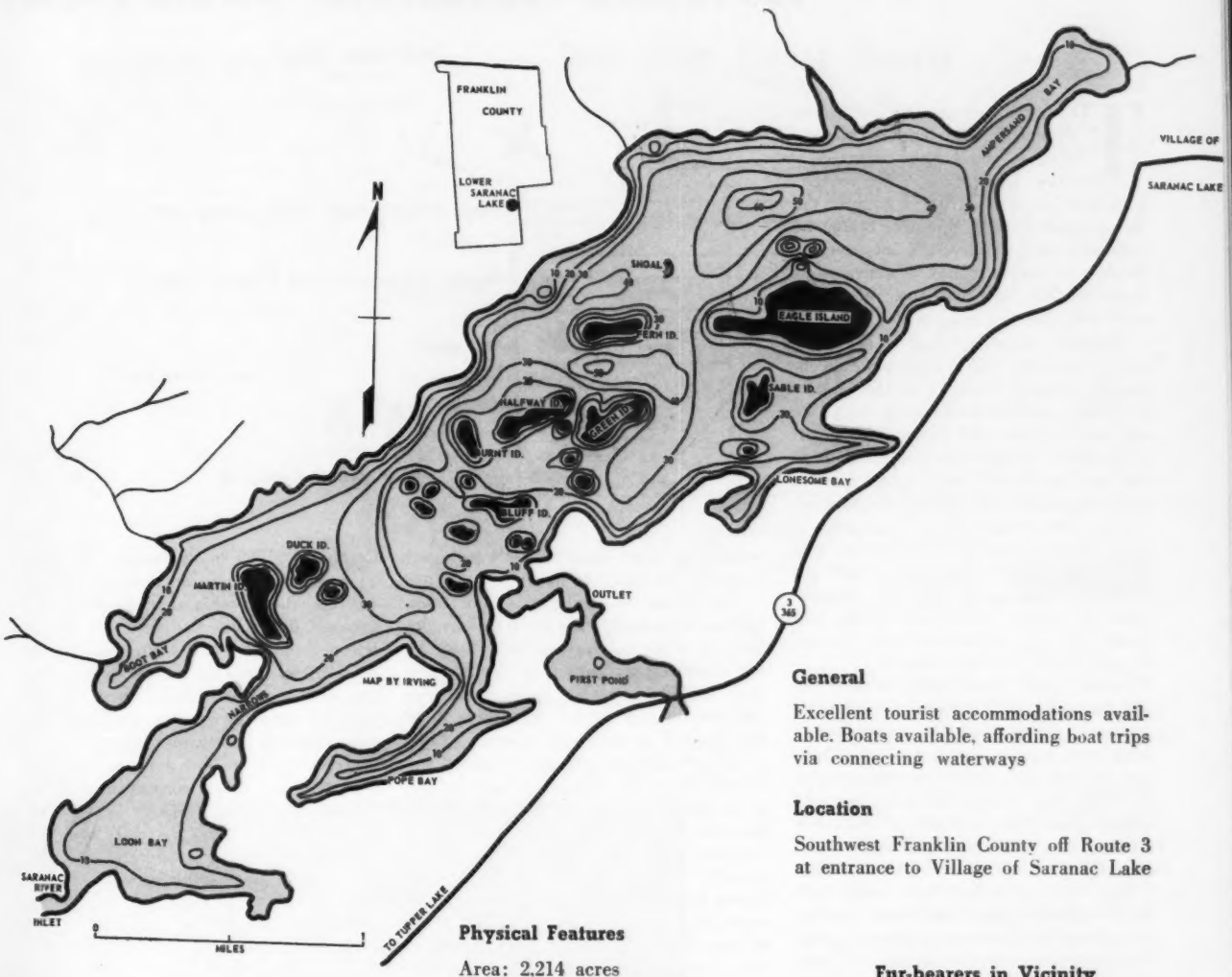
An industry and a community so harmoniously associated for 44 years must have something in common. They have!

To begin, Oval Wood Dish, employing some 300 men and women the year 'round, plus an additional 75 to 100 men seasonally on logging jobs, is one of the major economic mainstays in the Tupper Lake area. But the interest of the company has not been limited to those it employs in the community—it has played, and is playing an important role in helping to develop the recreational and natural resource assets of the region. For example, just look to the south from the plant. There, on the slopes of nearby Mt. Morris, on lands leased from Oval Wood Dish for $1 per year, the Town of Altamont is developing a fine new skiing center which it hopes to have in operation this winter. Or stop over at Tupper Lake in the summer months and play the 18-hole championship golf course. The site was donated by Oval Wood Dish; the first nine holes being literally hewed out of the forest by the company's logging crews during the depression days of the Thirties when there wasn't enough business to keep them busy logging. Perhaps you will fly into the area. If so, you'll put down at the Oval Wood Dish Airport, developed and maintained by the Company for its own and for community use. Or maybe you are bringing your boat to cruise and fish Tupper Lake. If so, you can put it in the water at a public launching site that wouldn't be there had it not been for Oval Wood Dish. It happened this way. Recently, the New York State Conservation Department was negotiating with a local landowner for the purchase of a plot of land on Tupper Lake on which it planned to develop a public boat launching site to provide much needed public access to the lake. In the course of the land survey, it was found that the owner did not have complete access to the water. At this writing, thanks to the co-operation and public spiritedness of Oval Wood Dish, construction of boat launching facilities is now under way because the company conveyed to the owner, at no expense to anyone concerned, sufficient land so that the project could continue without further delay.

It's obvious, we think, that this industry has demonstrated its real interest in Tupper Lake and its intent to stay. As added proof it can point to affiliation of its timberlands with the Conservation Department's Forest Practice Act and the Tree Farm Program; a good indication of continuing its policy of wise use of forest resources. Another OWD plant is located at Potsdam, devoted exclusively to the production of wood spoons, while a third installation is at Quebec City, Canada, supplying semi-finished raw materials to the Potsdam and Tupper Lake plants.

Back in 1938 (and they still do it today) a group of New York State Ranger School students spent a day touring the plant and practicing log scaling at Oval Wood Dish. Little did I realize that twenty-two years later I would be back to write a story about it.

Lower Saranac Lake



by Robert G. Zilliox,

District Fisheries Manager,

Adirondack Fisheries District

General

Excellent tourist accommodations available. Boats available, affording boat trips via connecting waterways

Location

Southwest Franklin County off Route 3 at entrance to Village of Saranac Lake

Physical Features

Area: 2,214 acres
Maximum Depth: 65 feet
Elevation: 1,534 feet

Chemical Characteristics

p.H.: Acid
Transparency: White to light brown

Hunting in Vicinity

Deer
Bear
Grouse
Snowshoe Rabbit
Bobcat
Coyotes
Waterfowl

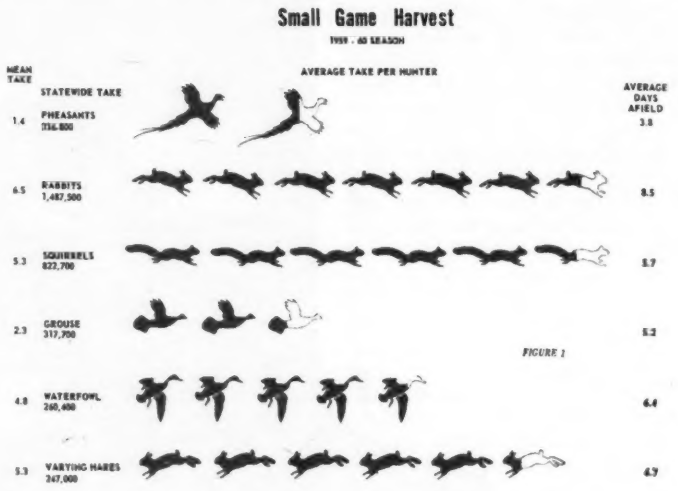
Fur-bearers in Vicinity

Beaver
Otter
Mink
Fisher
Raccoon
Muskrat

Fish Present

Rainbow Trout
Whitefish
Smelt
Smallmouth Bass
Northern Pike
Yellow Perch
Brown Bullhead
Sunfish
Suckers
Minnows

Small Game Harvest



THIS year we mailed 7,400 questionnaires, like the one pictured here, to small game licensees in New York State. We received sufficient responses from a sample this size to enable us to calculate State-wide estimates with a high degree of accuracy. Replies to our questions produced some answers that surprised us. We think they will surprise you, too.

The first thing that had to be anticipated was that the mailman would be unable to track down all of the hunters to whom questionnaires were sent. We did and he was—362 times. That's sort of a survey bonus answer, leading us to the realization that small game hunters must be a nomadic, not to mention secretive crew, when about 5 per cent of them can disappear in a few short months beyond the reach of the U. S. mail. As noted, this came as no surprise; we knew what to expect from prior years, and made the original sample large enough to compensate for the nomads.

So we, and Uncle Sam, wound up with delivery of 7,038 questionnaires of which—and hear this—80 per cent were filled out and returned to us. That's real co-operation, and we should add, the basis for success in handling our annual game take analysis in this time-saving, more economical and much more accurate manner.

Now who, or rather, how many took what kind of game? For what can be considered the basic small game species --pheasants, rabbits, squirrels, etc.—the tally held no surprises. You can check the results of our survey by reference to the accompanying graphs and pictograms *(Figures 1 and 2)*. You will note that pheasant hunters had the edge, once again, very closely followed by rabbit hunters. Squirrels edged out grouse in the popularity poll, while waterfowl and varying hare (snowshoe rabbits) came in fifth and sixth, respectively.

Of particular note, however, is that no matter what species was hunted, the chances of "connecting" were much better than even in all cases, and for some species, ran two and three to one. This, we think, is not too bad in a State that has more humans than any other in the Union. Or look at the State-wide take—nearly 1½ million rabbits (and this at a lowpoint in their population "cycle"), and almost a million squirrels. Add the take for these six species: A staggering 3½ million head of game. We were just wondering how many shots were fired to bring this game to bag?

Not shown on the graphs, but none the less of considerable interest, was the take of wild turkeys last fall down in the southwestern corner of the State—New York's first turkey "season." It was an experimental affair; only three days and limited to only two counties, Allegany and Cattaraugus, but it stirred up a great flurry of enthusiasm and not all of it local. In fact, hunters arrived in the area from no fewer than 18 different counties, some from as far away as Long Island's Suffolk County and from New Jersey and Pennsylvania. All told, 11,700 went after the big birds but only 1 in 36 was successful in bagging a gobbler for a total take, estimated, of 328. It was a new experience for both the hunters and the turkeys. Of the two groups, the turkeys appear to have had the upper hand.

Now, let's take a look at some differences in hunting activity and participation last year vs the year before. There were differences and one big factor as a causative agent—the $1, across the board, increase in license fees, effective October 1, 1959 for the license year October 1, 1959 to September 30, 1960. This dollar increase on a single license ($2 on the combination hunting and fishing) did make a difference; 55,378 fewer people bought a hunting license for 1959-60 than for the 1958-59 season —a 10.8 per cent drop. Now, if you want to conjecture as to probable reasons, there is plenty of latitude, but no concrete proof of just how accurate or important any single conjecture may be. Among the more attractive theories is the thought that many who were basically fishermen rather than hunters, but who had bought combination licenses in the past, on the off chance that they might go hunting, decided such chance wasn't worth a dollar's gamble and settled for the fishing license only. Undoubtedly, there are other reasons, but that's a good start.

You will see, that while license sales were off, hunting activity almost made up the difference, a greater number of the licensees were out there "after 'em," perhaps having decided that having paid more for their licenses, they were going to get their money's worth. You can check this by reference to Table 1, *License Sales and Hunting Activity*.

Table 1 **License Sales and Hunting Activity**

*License Period**	*License Sales*	*Licensees Afield Hunting*	*Per Cent Not Using License*
1959-60	459,712	364,092	20.8
1958-59	515,090	374,470	27.3
Change from 1958-59	–55,378	–10,378	....
Percent change from 1958-59	–10.8	–2.8	....

* Only first 5 months of license year included. Approximately 96 per cent of all small game license sales are made during this period.

1959-1960

by H. F. Maguire

Non-game Species

This year we took a new tack in our questionnaire, asking sportsmen whether, in addition to the "standard" species of game, they did much hunting for what might be termed specialty species, including such things as bobcats, woodchucks, crows, Hungarian partridge, skunks, opossums. Well, look at Table 2 and you'll see the whole list along with the tally of how many hunters hunted what.

Non-Game Species

Table 2

Species	*Number Hunters*
Bobcats	9,510
Foxes	79,800
Opossums	7,700
Raccoons	38,600
Skunks	5,600
Woodchucks	144,300
Crows	98,000
Quail	9,800
Woodcock	35,800
Hungarian Partridge	5,900
Coyote	2,200
Porcupine	3,900
European Hare	160
Pigeons	80

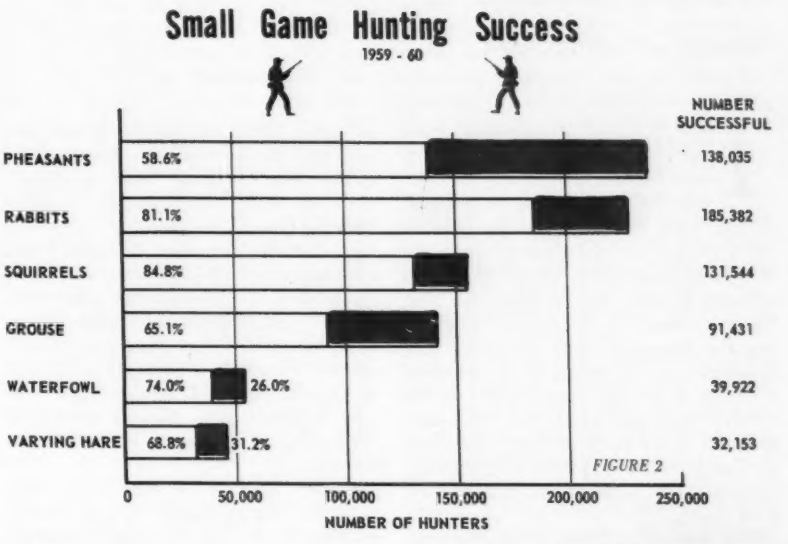
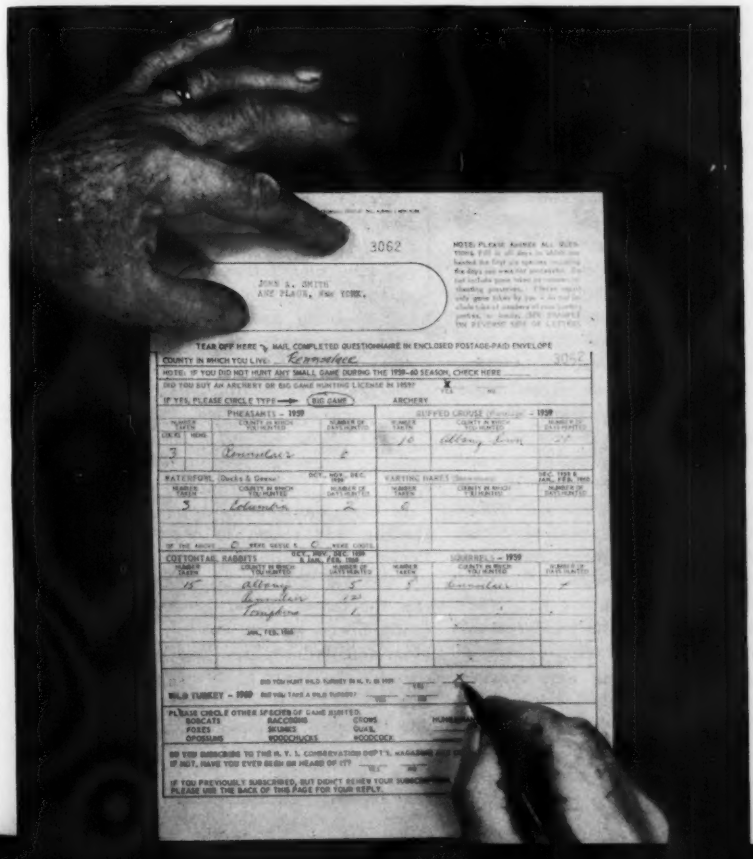


FIGURE 2

'chuck hunters 144,300 *Crow hunters 98,000* *Fox hunters 79,800* *'coon hunters 38,600* *Woodcock hunters 35,800*

This is where we said you would be surprised; not that all these species are hunted but at how many hunters go after them. On the questionnaire, after listing all the "secondary" game species, we added the off-beat ones, like opossum and just in case, left a couple of blanks for write-ins. Good thing, too! We wouldn't have thought of porcupines as a nominee for the chase, yet 3,900 hunters voted for that candidate. We're also pleased to see that coyotes are getting the attention they deserve from hunters. And even the barnyard pigeon gets into the act, although we have no fear for their future, with only 80 hunters on their trail. Actually, we think these pigeons, referred to here as barnyard pigeons, but actually European rock pigeons, are being overlooked as a sporty bird. They will stool to silhouette decoys, wheeling and swinging in quite like a flight of ducks. Aided by a brisk wind, they can be elusive targets.

We have already mentioned the splendid response from sportsmen contacted—80 per cent of those receiving the questionnaire. This is better than for any of the previous four survey years (best previously was 76.3 per cent in 1956-57) and is among the best response to surveys of this nature received anywhere in the country. It's a pleasure to be of service to sportsmen who exhibit so much interest and who are so outstandingly co-operative.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TEAR OFF HERE
MAIL COMPLETED QUESTIONNAIRE IN ENCLOSED POSTAGE-PAID ENVELOPE
COUNTY IN WHICH YOU LIVE:
NOTE: IF YOU DID NOT HUNT ANY SMALL GAME DURING THE 1959-60 SEASON, CHECK HERE
DID YOU BUY AN ARCHERY OR BIG GAME HUNTING LICENSE IN 1959?
IF YES, PLEASE CIRCLE TYPE
BIG GAME
ARCHERY
PHEASANTS - 1959
RUFFED GROUSE - 1959
COTTONTAIL RABBITS
SQUIRREL - 1959
WILD TURKEY - 1959
PLEASE CIRCLE OTHER SPECIES OF GAME HUNTED:
BOBCATS
RACCOONS
CROWS
FOXES
SKUNKS
QUAIL
OPOSSUMS
WOODCHUCKS
WOODCOCK
DO YOU SUBSCRIBE TO THE N. Y. S. CONSERVATION DEPT'S. MAGAZINE
IF NOT, HAVE YOU EVER BEEN OR HEARD OF IT?
IF YOU PREVIOUSLY SUBSCRIBED, BUT DIDN'T RENEW YOUR SUBSCRIPTION
PLEASE USE THE BACK OF THIS PAGE FOR YOUR REPLY.

The Wildlife Management Institute

by James B. Trefethen,

Director of Publications

THE Wildlife Management Institute, as a distinct organization, was founded as recently as 1946, but its program has a pedigree dating back to 1911, and possibly to 1884, if its early relationship to the old New York Association for the Protection of Game is taken into consideration. The lineal ancestor of the present Institute was the American Game Protective and Propagation Association, which stemmed from its venerable counterpart in the Empire State and which was headquartered for many years in New York City. Its first president was John B. Burnham, former Chief Game Warden of New York State.

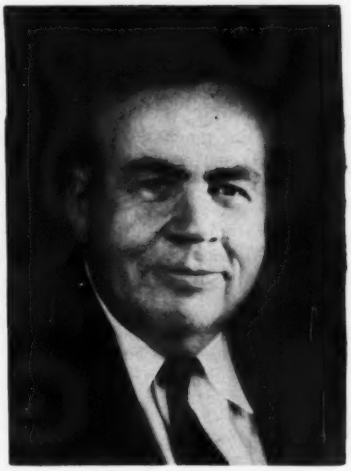
The American Game Protective and Propagation Association was born of necessity early in the second decade of the present century to provide national leadership in developing sound state and federal wildlife administration. This, of course, was at a time when many states had no administrative machinery at all for protecting fish and game resources, when others had only rudimentary official organizations and when market hunting still was an accepted legitimate profession in many parts of the country. One of the first tasks of the new organization was to organize sportsmen sentiment for a concerted and unified push for a federal migratory bird law, a bill for which had been introduced in each session of Congress since December, 1904 by Congressman George Shiras 3rd of Pennsylvania. The enactment of the Weeks-McLean Law in 1913 and the eventual Migratory Bird Treaty Act of 1916 culminated this phase of the Association's activities.

In the meantime, its program had been developing and maturing. As a vehicle to place its program before the American public, it published a monthly authoritative *Bulletin* on wildlife conservation, and on March 1, 1915, it called the National Conference on Game Breeding and Preserving, which was held in the old Waldorf-Astoria Hotel, on the present site of the Empire State Building in New York City. This was the forerunner of the present North American Wildlife and Natural Resources Conference, which has been held annually under various names since that date. As the name implies, this conference was principally concerned with the artificial propagation of game birds for release in the wild and only minor emphasis was placed on game administration and practically none on what today would be called "management." In keeping with the vogue of the day, the American Game Protective and Propagation Association, established an experimental game farm near Carver, Massachusetts where pheasants, bobwhite, ruffed grouse and exotic species were raised in captivity to test new techniques and to investigate species of foreign birds showing promise of succeeding as wild game birds in North America.

Shortly after World War I, the term "wildlife management" became firmly established in the English language, largely through the pioneering activities and teachings of Aldo Leopold, who was a regular participant in the National Game Conference, as the annual meeting became known after 1915. Leopold brought an entirely new philosophy to the problem of dealing with wildlife. His thesis, briefly stated, was that birds, mammals and fish, like trees or agricultural produce, were products of their environment that could be cultivated by manipulation of their habitat for maximum productivity. Game, he pointed out, was an annual crop that could be harvested heavily by hunters, so long as the environment is maintained in a condition that provides all of the needs of the species.

In its beginnings, game conservation had consisted entirely of legal protection and artificial propagation. The birth of wildlife management as a science stemmed from the teachings of Leopold and a few other pioneers, including members of the staff of New York's Roosevelt Wild Life Forest Experiment Station, and it influenced strongly the program of the American Game Protective Association. After World War I, artificial propagation underwent a gradual de-emphasis in favor of the promotion of game laws based upon a scientific study of need, the improvement of sportsmen's ethics and still rather primitive habitat restoration programs.

The first of these was not easily accomplished since with the exception of Cornell and Iowa State College, no institutions of higher learning were turning out men trained to conduct basic wildlife research.



Ira N. Gabrielson
President, Wildlife Management Institute

We're pretty sure there is no one in this broad conservation-natural resource field who hasn't heard of Ira N. Gabrielson. We're equally sure that everyone who has had the good fortune to know "Gabe," to see and hear him at national wildlife conferences, to study his writings in this field, must have nothing but great admiration, liking and respect for this big, genial, veteran conservationist.

Since 1946, Dr. Gabrielson has headed the Wildlife Management Institute, retiring from the directorship of the U. S. Fish and Wildlife Service to accept that post. Under Dr. Gabrielson's guidance, the Institute has contributed invaluably as a consultant to a number of states in helping them to develop more effective wildlife management programs and more efficient administrative policies. On the national front, the Institute has been an alert and stalwart defender of our natural resources.

In 1935, shortly after Jay N. ("Ding") Darling was called to Washington by President Franklin D. Roosevelt to head up the old Bureau of Biological Survey, the famed conservationist-cartoonist brought with him an entirely new set of ideas and philosophies. One was the concept for the union of all organized local and state groups interested in wildlife into a huge national federation that

could be active at all levels of government in promoting non-partisan and truly effective wildlife administration and conservation. Another was the idea for a national program to train men in scientific wildlife management at various land-grant colleges. Two years earlier, Darling, as a member of the Iowa Fish and Game Commission, had provided personal funds to the extent of $9,000 to initiate such a program in co-operation with the college and the Commission at Iowa State College. He visualized the extension of this program to numerous other land-grant colleges in order to meet the needs for trained men that would be required by his own elaborate proposed program of federal refuges and research. Since no federal funds for such a far flung program were available, Darling called a dinner meeting of prominent industrialists at the Waldorf-Astoria Hotel in New York on April 24, 1935 and laid his case before them. As a result of this plea, the duPont Company, the Hercules Powder Company and Remington Arms Company agreed to underwrite a substantial portion of the needed funds for a period of five years. Thus a new organization, the American Wildlife Institute, was established, while the American Game Protective and Propagation Association, which had functioned continuously for 24 years, became inactive, although retaining its charter, and its programs were turned over to the new organization on August 20, 1935. Its President was Thomas H. Beck, who was succeeded five months later by former Senator Frederic C. Walcott of Connecticut.

Wildlife Research Units

The new Institute set about the task of attaining its assigned goals. The Co-operative Wildlife Research Unit Program was launched immediately at ten land-grant colleges in co-operation with the respective state conservation department, the college or university, and the Bureau of Biological Survey. This number eventually was expanded to 16 states in each of the major ecological regions of the United States. The new Institute also underwrote the initial expense of federating the sportsmen of America, as visualized by Darling, and by agreement the General Wildlife Federation, (later National Wildlife Federation) was launched and became a free and independent organization as soon as it became self-supporting.

A third proposal of Darling's also was placed in operation through the influence of the new Institute. This was the staging of a super Wildlife Conference which was to dwarf anything that had been held in North America to that date. Darling prevailed upon the Administration to have the President of the United States call the Conference personally, and on February 3-7, 1936, the North American Wildlife Conference was held in Washington, D. C. This, by agreement with the Institute, took the place of the old American Game Conference, and the sponsorship was resumed by the American Wildlife Institute on an annual basis after that year.

Shortly after 1940, Walcott was approached by a Canadian sportsman, Francis H. Kortright, who had an impressively illustrated manuscript on North American waterfowl which had been rejected by several commercial publishers. In search of a publisher, he had contacted Walcott, an avid bibliophile, who was able to see the need for such a publication. In 1942, "The Ducks, Geese, and Swans of North America" was published, launched the Institute into the book publishing field, and became an immediate best-seller. Since that time it has gone through eight printings and has become a classic work on American waterfowl. This was followed by several other authoritative monographs, including "The Canvasback on a Prairie Marsh," by H. Albert Hochbaum and "The Wolves of North America," by Stanley P. Young and E. A. Goldman.

Expanded Program

With the end of hostilities after World War II, the need for a new and expanded program became apparent, and from this there emerged the present Wildlife Management Institute under the presidency of Dr. Ira N. Gabrielson, who recently had retired as director of the U. S. Fish and Wildlife Service, the successor to the old Bureau of Biological Survey of which Gabrielson had been the last Chief. Under the reorganization, the American Wildlife Institute became the North American Wildlife Foundation, and its public activities and programs were handed over to the Wildlife Management Institute in 1946. C. R. Gutermuth, formerly Director of the Indiana Conservation Department, who had been the Secretary of the old Institute, became Secretary of the new Foundation and Vice-President of the Wildlife Management Institute, providing a close and fortunate liaison between the two organizations. As a result of this reorganization, the physical property of the Delta Waterfowl Research Station in Canada is owned by the North American Wildlife Foundation while the management of the program is carried on by the Institute.

Under the new leadership, the program was again refined and expanded. A new co-operative station was established in 1947 at Fredericton, New Brunswick to train students and to conduct research, principally on the black duck and other eastern waterfowl, woodcock and moose. The program at the Delta Waterfowl Research Station has been progressively and vastly expanded and has provided important basic data on waterfowl migration, habitat needs and similar vital information that would otherwise be virtually unobtainable. At the same time it has provided valuable training for many American and Canadian graduate wildlife students and many of the Delta alumni hold important administrative, educational and technical positions with state, provincial and federal agencies on both sides of the border.

In addition to the "Transactions of the North American Wildlife and Natural Resources Conference," the Institute publishes one or more important books each year, usually monographs on major wildlife species. Its books are released through a co-publishing agreement with the Stackpole Company of Harrisburg, Pennsylvania and are widely used as textbooks in wildlife courses. It also distributes several "know-how" booklets to assist landowners and sportsmen to manage wildlife on the land. *American Wildlife*, the monthly magazine of the American Wildlife Institute was a casualty of World War II. In lieu of this, the Wildlife Management Institute distributes a newsletter, *The Outdoor News Bulletin*, which is prepared for and distributed primarily to the outdoor writers of North America.

In the field of education, the Institute each year issues a limited number of fellowships, scholarships and grants in aid to deserving graduate students who have demonstrated an ability to conduct important independent research on pressing problems of wildlife management. Its co-operation with the land grant colleges, the U. S. Fish and Wildlife Service, and the state conservation departments in this field continue in the Co-operative Wildlife Research Unit Program. It provides each Unit with an unobligated cash contribution each year and C. R. Gutermuth, its Vice-President, is a member of the Co-ordinating Committee of each Unit.

The Institute, a non-profit, private, tax-exempt organization, receives no federal or state funds and is supported by contributions from members interested in furthering the cause of wildlife management. Its goal is to develop optimum wildlife populations consistent with the needs of the people for food, fiber and clean water for the cultural, esthetic and recreational benefit of the American public.

Seneca Blowguns

By Austin S. Hogan

MANY New Yorkers, especially upstaters, pride themselves a little on their knowledge of the Iroquois Indians. This familiarity is only natural as the remains of hundreds of villages have been found from the eastern gate of the Longhouse in the Mohawk Valley, to the shores of Lake Erie. Sportsmen know that their skill in hunting and their woodcraft was something far beyond the abilities of most modern hunters. Because the bow and arrow was the principal weapon and provided most of the meat, it may come as a surprise to know that these northern Indians had a good working knowledge of the blowgun, and used it most effectively on small game.

Blowguns are usually associated with savage aboriginals of the Amazon or the Malayan Archipelago. Their poisoned tipped darts were a formidable weapon. However, ethnologists have evidence that the prehistoric Indians of the Gulf of Mexico knew of the blowgun and in bordering areas, tribes such as the Cherokees hunted small game with it.

It is a matter of conjecture, however, just how the Iroquois learned of its efficiency. In primitive times they were great travelers, roaming the trails along the Mississippi and south to the Carolinas. But it seems doubtful that any of the Pre-Columbian tribes of the Longhouse used anything but the bow and arrow, spears or snares. They most certainly have left no record of a poisoned dart or arrow. Lewis Morgan, in his "League of the Iriquois," gives us in the first edition, 1851, a short paragraph describing an "air gun" and its specifications but unfortunately notes no date or reference or source of information.

One of the more interesting accounts comes from a twenty-one-year-old Irishman named Isaac Weld, who as a topographical writer, toured the United States and Canada in the years 1795, 1796 and 1797. By that time the Iroquois were no longer a proud and powerful nation, having been scattered by the Revolutionary War to resettlement in Canada or on reservations in the State of New York.

In spite of his youth, Weld had the eye of an ace reporter. He visited many of the new-born states, moving ultimately up the Champlain Valley to Montreal and Quebec, fighting mosquitoes and black flies all the way but giving the impression that in spite of miserable lodgings, here was a spectacular country. On arriving at Quebec, he and his party hired a batteaux and crew for the journey back up the St. Lawrence. He saw Indians "factory making" birch bark canoes, observed the richness of the soil and forests and watched commercial hunters and fishermen at their daily tasks. At Kingston, Ontario he dined on venison and steaks from a fifteen-pound Atlantic salmon speared by torchlight.

Weld talked to hunters who described the great migrations of millions of passenger pigeons that completely covered the sun for days on end and the strange movements of bears to the southward and squirrels to the northward in intermittent years. Both Indians and whites alike found the bears easy to kill when swimming a lake or river. He wrote, (October, 1796): "This was both a bear and a squirrel year. The squirrels this year, contrary to the bears, migrated from the south, from the territory of the United States. Like the bears, they took to the water upon arriving at it, but as if conscious of their inability to cross a very wide piece, they bent their course north to the Niagara River above the falls and at its narrowest and most tranquil part crossed over into the British territory. It was calculated that upwards of fifty thousand crossed over in three days; such depredations did they commit that farmers deemed themselves very fortunate if they got in as much as one-third of their corn."

These were black squirrels, in shape similar to our common gray and weighing from one to two and one-half pounds.

Weld spent several days at Niagara Falls, then planned to sail to Detroit but contrary winds held his ship at anchorage on Lake Erie. The party established quarters at a local tavern called Mother Palmer's Place but found it so squalid they moved to the ship where they could at least get a decent meal.

If it hadn't been for the obstinate winds, Weld would never have met the Senecas who demonstrated to him their amazing skill with the blowgun. Bored by inactivity aboard ship after breakfast they would go ashore to entertain themselves as best as they could in the small settlement surrounding Fort Erie. Sometimes they hunted the black squirrels that inhabitated the country side, swarming that year, in every shrub and tree by the thousands.

The technique was very simple. Borrowing native dogs they would proceed to a likely spot, then the hunters would shout and beat upon the trunks of trees with sticks until the frightened squirrels jumped to another tree only to be disturbed again by the noise of the hunters and the barks of the dogs. In time a squirrel would lose its footing, whereupon a dog would grab it. At times a squirrel was chased a quarter of a mile before capture.

It was on these rambles that Weld writes he frequently fell in with parties of "Seneka" Indians from the other side of Lake Erie. Hungry hunters are good shots no matter what the age or weapon but let Weld give the accounting. "They shot them principally with bows and arrows and blowguns, at the use of which last the Senekas are wonderfully expert. The blowgun is a narrow tube commonly about six feet in length, made of a cane reed or of some pithy wood through which they drive short slender arrows by the force of their breath. The arrows are not much thicker than the lower string of a violin; they are headed generally with little triangular bits of tin, and around the opposite ends, for the length of two inches, a quantity of the down of thistles or something very like it, is bound so as to leave the arrows at this part of such thickness that may but barely pass into the tube. The arrows are put in at the end of the tube that is held next to the mouth. the down catches the breath and with a smart puff they will fly to a distance of fifty yards."

Ed. note: The author's account is interesting, not only in revealing the little known and dexterous use of blowguns by "northern" Indians but also in calling attention to the year 1796—a period of squirrel population "explosion" in western New York.

The black squirrels referred to are a color phase of the usually more common gray squirrel, the same species.

Iroquois Indian model on display at N.Y.S. Museum, Albany, showing one-piece, metal-tipped, maple blowgun. Used for hunting small game, this blowgun is 5'8" in length; handled darts like that pictured on opposite page

Dave Cook, Conservation Department Senior Forester, displays a Cherokee cane blowgun and quiver of slender, thistle down-wrapped darts from his personal collection

He doesn't say how the Senecas manufactured their blowguns. If made from reeds or a pithy wood as he suggests the making would be fairly simple. The Malayans fastened a straight piece of wood in a vise made of tree branches and hung vertically. Above, a sharpened iron rod, guided through loops was pounded down the middle, a twist given with each stroke. Water was used to prevent splitting and wash out the chips. Perhaps the Senecas used a ramrod for the same purposes.

Squirrel hunters with .22 calibre rifles compliment themselves if they get three out of five shots home. Weld talks about perfection: "I have followed young Seneka Indians, whilst shooting with blowguns for hours together, during which time I have never known them to miss their aim, at the distance of ten or fifteen yards, although they shot at the little red squirrels, which are not half the size of rats, and with such wonderful force they used to blow forth the arrows, that they frequently drove them up to the very thistle down through the heads of the largest black squirrels. The effect of these guns at first appears like magic. The tube is put to the mouth and in the twinkling of the eye you see the squirrel that is aimed at fall lifeless to the ground, no report, not the smallest noise even is heard nor is it possible to see the arrow so quickly does it fly, until it appears fastened to the body."

This is amazing and almost implausible until it is remembered that on the Amazon the Indians in the deep jungles still wing their suppers, often while a bird is in hasty flight. Weld writes too simply to doubt the authenticity of his description.

Some bright October afternoon, when the brilliant yellow and orange of frost-touched leaves reflect against a clear blue sky, pace off forty-five feet, then think back one hundred and sixty-three years or so to the very month. The confusion of color and bouncing light was the same then as it is today, so hunters of red and gray squirrels appreciate how well these Senecas could shoot.

The Pine Grosbeak

A Bright and Roguish Visitor from the Northland

by David B. Cook, Senior Forester

THE Pine Grosbeak *(Pinicola enucleator)* is an irregular winter visitor in many parts of New York State. It is the biggest of the sparrow family in northeastern America; about the size of a fat robin but with a blockier head and a heavy, conical bill. The ground color of the plumage is a soft grey, with two conspicuous white wingbars. The winter birds look as though they had been dipped head first into a dye pot, so that the plumage is suffused with color, brightest on the crown, breast and tail coverts. The adult males are a good, bright red; adult females and both sexes of the young of the year are yellow.

Pine grosbeaks are characteristic inhabitants of the great belt of the Northern Coniferous Forest, which is composed of spruce, fir and larch and of birch and aspen. In America, this forest belt extends from the Maritime Provinces of Canada across to Alaska and north to the limit of trees. In Eurasia, a comparable association of trees — the same genera but different species — sweeps from Kamchatka across Siberia to northern Scandinavia. Pine grosbeaks, with some minor differences between geographic sub-species, occupy this forest belt all the way around the North Pole, so that half of them are Russians, half Canadians.

In Canada, the grosbeaks nest in a variety of forests—in those composed entirely of conifers, in mixed woods and even in pure stands of birch, a type which often follows fire on upland sites. They are not known to breed in New York State; not even in the spruce-fir forests of the higher Adirondacks. Whether this is due to an actual absence of birds or to an absence of bird-watchers I do not know, but there are some basic differences between our spruce-fir and that of Canada and it seems quite certain that the grosbeaks do not now nest south of the St. Lawrence River.

In winter, our grosbeaks move south from their Canadian breeding grounds and it is then that they are to be found among us. As they are primarily birds of the evergreen forest, and dependent on it for winter food, they occur most frequently in the Adirondacks and along the hills of Washington and Rensselaer counties, where conifers are relatively abundant. Rarely do the birds invade the primarily hardwood country south of the Mohawk River. Their comings and goings can best be described as erratic; here today and gone tomorrow. Some years they are abundant, some years almost absent; sometimes they appear in many places, sometimes in only a few. It used to be thought that the big flights—like those of the snowy owl—occurred during exceptionally severe winters, and certainly there were plenty of them around during the terrible winter of 1933-34. But low temperatures alone can hardly be the whole story, for some areas of Canada are warmer than parts of New York State; besides, the birds often arrive here well ahead of cold weather and linger until spring is almost at hand.

The records of grosbeak abundance are relatively few and scattered, giving the impression that the bird is quite uncommon. That is certainly true throughout central New York, but it does not hold for the hill country east of the Hudson River in Rensselaer County. In this area, I've been watching the grosbeaks for thirty years. They first came to my notice in 1931 and I have further records for 1933, 1937, 1939, 1940, 1941 and 1943 or seven out of thirteen years. Since then, they have been present almost every year and I feel that the missing years can be accounted for as much by the absence of an observer at the right time as by absence of the birds. Their regular return to this area is probably attributable to the abundance of conifers on the Grit Plateau in New York as well as in the Berkshires, just across the line in Massachusetts, for these provide the essential winter food for the grosbeaks, without which they will move on. Perhaps the reason that they are not reported more frequently from the hills of the Southern Tier is that the patches of conifers in that region are chiefly the State forests, which cap the highest hills; sections that are hard to get into in winter. As the evergreen plantings grow up and the bird-watchers get further afield in winter, it seems sure that the birds will be seen more frequently south of the Mohawk.

While in New York, grosbeaks characteristically travel in bands of from six to thirty birds, although they sometimes gather in flocks that number a couple of hundred. Birds found singly are apt to be ones that have strayed from their flock. Perhaps the unit is the family group—an adult male and adult female and the young of the year —and the bigger flocks no more than loose collections of family groups. This would account for the preponderance of yellow birds and the relative scarcity of red males. As these birds move about, whether feeding or on the wing, they give forth an almost continuous mellow whistling which may serve to keep the band together.

Grosbeaks are friendly, cheerful creatures, always on the move, always full of soft music and cautious about but quite unafraid of people. I remember, some twenty years ago, Walt Schoonmaker and I were trying to get close enough to some grosbeaks to photograph them. The flock was feeding in a plantation of larch, where the trees were fifteen feet tall and two inches through. As we stalked within camera range, the birds would simply move up a branch or two so as to be out of reach, and peer down at us in a curious, friendly way. Tiring of this and hoping that the birds would move to some place more favorable for pictures, we decided to shake one loose. But no matter how violently we shook the tree, the grosbeak stuck to its perch, bobbing back and forth with every movement of the branch. It took some loud hand-clapping and more than a few snowballs to flush the flock.

Nor do these birds confine themselves strictly to the treetops. They often come down onto bare ground or hard snow to feed; will sometimes alight on snow so soft that they well nigh disappear from sight.

The winter food of the grosbeak consists of seeds and the buds of hardwood and, more importantly, of coniferous trees. They are known to pick up seeds from the ground or the surface of the snow and to eat the berries of sumac and the buds of apple and maple. They peck the seeds out of frozen apples and consume the strobiles of birch trees. But their staple winter food is the buds of coniferous trees—pine, spruce and larch —and it is here that the birds annoy the forester. Pine trees charcteristically have only a cluster of buds at the tip of each branch and these buds are of relatively large size, especially the terminal bud on the leading shoot of young trees. These the grosbeaks eat, ham-

mering them out with their stout bills. If their feeding takes all the buds, the attack results in a witch's broom—a mass of twigs grown from tiny buds that develop in the axils of the needle clusters. This deforms the tree, causes the loss of a year's growth and spoils its shape, which is especially serious in Scotch pine Christmas tree stock; in red pine, it may cause the tree to fork. Spruces have the same big cluster of terminal buds as do the pines, but they also have many smaller buds scattered along the twigs. Here, feeding is not so serious, as the tree can develop a new leader from the highest surviving bud. Sometimes, the birds take off all the small buds, leave the terminal, which is protected by a frill of stout needles. The result is the suppression of one set of lateral branches and two years' leaders that look like one—and like a tremendous growth for one year.

Unlike the stout-twigged pines and spruces, the larches have slender twigs, too limber to support a heavy bird like the grosbeak. So the birds confine their budding to the inside of the crown, which they can reach from stouter twigs. Intensive feeding may take off the buds from all but the outside of the crown so that, when the tree leafs out in the spring, it presents the appearance of a hollow cone. However, grosbeaks do no permanent harm to larches, as the loss of buds is soon made good by new growth.

While the pine grosbeak may at times be something of a nuisance to Christmas tree growers, he is a part of the winter scene here in New York, a part which we should cherish as wanderers from afar. They are but few and they come but for a little time. Mostly they stay back in the woods, strictly minding their own business. A flock of these big, bright birds, full of pleasant activity and merry whistling, is always a welcome addition, especially when it lends the only cheerful note to a gloomy winter landscape.

(Courtesy N. Y. S. Museum)

PINE GROSBEAK *Pinicola enucleator leucura* (Müller)

ADULT MALE IMMATURE MALE FEMALE

All ⅔ nat. size

Some Animals of New York

With Random Observations and Thoughts on How and Where They Live

by Ed. Maunton,
N.Y.S. Conservation Department

Ed. Maunton, with a background of wide experience as a professional trapper and licensed guide, has worked for the Conservation Department's Bureau of Game for many years, specializing in studies of fur-bearing animals. In recent years, he has collaborated with the flying biologists as a highly trained observer on aerial game surveys. His knowledge of the animals he writes about here is firsthand—he has spent a lifetime with them; lived in their world and knows them as few humans do, these days.—Editor

ALL animals are individuals. Although they may have many habits or ways in common, they have their own personalities and dispositions. There are the stupid and the smart, the wary and the bold, the docile and the belligerent—even among litter mates.

There are differences, too, in the food habits of individuals of the same species in the same localities. For instance, some mink prefer a diet of crayfish, frogs and fish, while others like a warm-blooded diet of mice, rabbits, muskrats and ducks—even though fish and frogs may be available.

The same species in different localities will often vary in habits. For instance, foxes in farm lands or close to human habitation will use the same trails as humans do and will walk in fresh human tracks in the snow. In contrast, foxes in the backwoods often won't cross a man's track in the snow. If they do, they usually jump as far over it as they can. Otter often play around in the water near villages within a few yards of boats and people, but will often leave the country, back in the woods, when a trapper appears in the area.

Seasonal changes, too, are reflected in the habits of most animals. Some hibernate or den up, while others move to different locations. Deer, for instance, move from their summer and early fall range to winter cover in the lowlands where they take shelter in "deer yards."

So the habits of animals are not so predictable as one might think, varying according to such environmental factors as time, place, availability of food and cover and differences in the individual, to mention a few. Everything on earth is forever in a state of change, even the rocks, soil and water as well as vegetation and animals. What are accepted as facts today in relation to wild animal habits, may be changed in a relatively short time.

If there is anything *certain* one can learn from life-long association with wild animals; it never pays to be dogmatic. You can learn something new about them—always.

The White-footed Mouse

For several minutes I had followed the tiny tracks as they zig-zagged over the sunlit snow along the shore of the frozen lake. Suddenly, they turned, heading out across the snow-mantled ice. A few feet from the protection of shore with its logs and woods, another set of tracks joined the first. A fox had seen the white-footed mouse as it headed across the ice. The tracks told the story. The mouse, sensing danger, turned towards shore. The fox cut him off. Back and forth across the ice they raced, skidding on the turns, the tracks drawing closer as the fox gained, extending the gap as the fox lunged, slipped and missed—then gained once more. The mouse was tiring; the distance between the tracks shortened. Finally, there was a place where the fox had sat for a moment, then leisurely trotted off into the woods. There was only one set of tracks now—the fox's! The drama was over.

White-footed mice are among the most numerous of all our mammals, living in a variety of situations. Very often the mouse nest will be one left by a thrush of some other bird and capped with a roof of leaves. Or it may be an old hollow stub or a squirrel's nest high in a tree or even in a hollow, rotting log under the snow. Barns and empty bird houses are used, too. Almost anything that provides cover seems to do. This is a good thing since a female mouse, starting in early spring, will produce several litters a year and the young are capable of reproducing when only three weeks old. In consequence, immense numbers of these mice sometimes build up. It is fortunate for man that they tend to eat great quantities of insects as part of their summer diet. David B. Cook, of the Department's Bureau of Lands and Forest, encourages these mice in his forest plantation by putting up mouse houses just as some people put up bird houses. He feels that they do enough good in controlling insect pests to justify the effort. During the times of the year when insects are not available, these mice feed extensively on small plant seeds that abound in great quantities in the wild. Some of these are stored in hollow logs and natural cavities where they can be easily found if a prolonged spell of bad weather should set in. During the worst storms, the white-footed mouse dozes away in his nest, but as soon as the weather clears he is out, active again.

Mostly a nocturnal animal, the white-footed mouse has large eyes which are particularly adapted for seeing in the dim light of the nighttime woods. It seldom ventures from its nest during daylight hours even when the weather is warm. If any animal should feel a persecution complex, the white-footed mouse should because this beautiful creature has a multitude of enemies. Every flesh eater from snakes and shrews to owls, bobcats and coyotes preys on it. It is no surprise that the winter snows tell the stories of many dramas of life and death with these mice playing a leading role.

The Gray Squirrel

Once, many years ago, while walking through the blue shadows of a winter woods, I stopped and stared. There on the freshly fallen snow were the tracks of an animal. Strange, I thought, the trail suddenly starts as if the maker had been created on the spot. I stood there puzzling when suddenly from overhead came the answer. From the high limb of an oak, a big gray squirrel paused a moment in his feeding to chatter a few staccato squirrel cuss words at the little boy who dared to invade his domain on that crisp winter morning. A few minutes before, the squirrel had climbed part way down one tree and jumped far out into the snow where, with a few short leaps, he reached his home tree.

Unlike some rodents, the gray squirrel is active all winter. His tracks, much in the manner of a rabbit's, with the hind feet placed ahead of the front, criss-cross the snows of his woods world as he retrieves hickory nuts and acorns hidden the previous autumn. In New York State, the largest concentrations of these squirrels are found in oak-hickory areas but the numbers nowhere approach those of former years. From the early days of this country's settlement, there are reports of huge migrations of squirrels often numbering into the millions. So severe was the damage from these rodents that in 1749, Pennsylvania paid a three-pence bounty on each of 640,000. The onslaught of such hordes could well spell disaster to the early settler with his small, but vital, garden. Even today, the squirrel causes damage. With a cultured appetite that varies from wire insulation to tulip bulbs, he is a subject of complaint.

In the wild the gray squirrel spends much of his time in trees, his sharp, curved claws and long, bushy, stabilizing tail serving him well for such a life. The nest is usually a platform of twigs high in a tree, roofed with a weatherproof network of leaves and small twigs. Mating occurs during midwinter and the young are born into the awakening world of early spring. It is at this time that the adults, as if in celebration, sometimes take to drinking. Not liquor but sap. Nipping the ends off maple twigs, they will sit for hours catching the dripping sap or lapping it up as it oozes.

Young squirrels grow rapidly and are nearly full size by autumn, when the forest mast is ready for harvest. Then is the season of activity with hickory nuts, beechnuts and acorns to be gathered and stored against the lean days of winter. Early in the morning and late in the afternoon, the forest floor becomes a highway of hurrying, hungry squirrels as some instinct tells them that winter will soon be on the land. It is then, too, that the hunters gather—man with his gun; the great horned owls and barred owls with their silent, ominous flight, and the quiet waiting and dashing coopers and goshawks.

During the really cold spells, squirrels retire to the trees, weathering the worst of the winter storms in the security of their nests. But with warming suns and normal winter weather, the snow records their activity as they seek hidden food and visit their neighbors looking for a possible mate.

Whether in the woods or in the city park, in a tree nest or in someone's attic, eating hickory nuts or wire insulation, seen through binoculars or over a gun barrel, the gray squirrel adds much to the interest of the outdoors.

The Fisher

Called the "black cat of the Adirondacks," the fisher is well distributed throughout the North Country of New York. Lives almost anywhere except in open mature hardwoods. Sometimes their tracks can be seen in such cover but they appear to be just passing through. Fisher are great travelers; apparently keeping on the go most of the time. Probably don't settle down long at any particular place unless they are feeding on a big carcass or raising young.

Use rock holes, ground holes, hollow trees and logs for dens. Don't seem to sleep out, preferring dens to rest in. Will den up for a few days during very severe weather.

Little is known about their breeding habits and family life in the wild. The breeding season is probably in March as they are very active then. Tracks, especially of large males, are seen then more than at other times. One to four embryos is about the average found in females.

Diet is mostly meat, but at times some fruits and a few beechnuts have been found in their stomachs. Their staple in most sections seems to be porcupines. They evidently are able to kill porkies and are always carrying the quills in their skins. They also eat and digest the quills. Bundles of quills are usually found in their digestive tracts. They also eat squirrels, chipmunks and rabbits and at times will kill and eat raccoons. They are thought by a few people to prey on marten, but this was probably based on finding a few scraps of marten fur in a few fisher stomachs. It's true that fisher are very fast, but compared to marten they are slow pokes.

Were at one time considered shy, wilderness animals, but have been seen of late in such civilized areas as the outskirts of large towns, like Saranac Lake. It wouldn't be surprising to hear of them feeding on the garbage dumps along with the bears and 'coons.

They can be classed as a predator, at least on porcupines, which is all to the good! In some areas, they are credited with actually keeping the porcupine population down somewhat. However, from the appearance of some Adirondack camps, they don't appear to be doing a very good job of it.

Fisher pelts vary in value more than any New York State fur. A fair price was paid last year (up to $50) for the small, fine dark female skins but the larger coarser skins of males brought only about $5. Not many fisher are trapped each year; less than 400 reported last year in New York, despite a long open season.

The Beaver

The beaver is our largest rodent, some weighing more than 100 pounds. The average large one in this State goes around 50 pounds, while most mature specimens will run between 35 and 45 pounds.

This animal is widely distributed across the State, with the largest population in the Adirondack area.

Beaver prefer small sluggish streams in which to build their dams, but they don't hesitate to build on large swift streams if need be, and they are frequently found living in bank burrows along rivers and in ponds and lakes. Build a lodge of sticks and mud but sometimes live in bank dens or a combination of bank den and house. Sometimes sleep out on the banks of streams and ponds when traveling. Beaver have been seen in these beds sound asleep. Usually a pair of them are using the bed, which looks like a big deer bed. Fishermen often see these beds in grassy places along trout streams.

Not much is known of the breeding habits of beaver in the wild. They are thought to mate for life; at least the mated pairs are of the same size. Males and females look alike; there is no difference in appearance or size. The main breeding season is in February and litters will average from one to five. However, as many as eight embryos have been seen in the reproductive tracts of mature females taken from places where food was in good supply. Lack of preferred foods affects reproduction.

Given a choice of menu, beaver will choose poplar, but denied that, they will turn to yellow birch, soft maple and some kinds of willow. Even conifers are accepted, in a pinch, as are lily roots and smaller aquatic plants. The bark of woody plants is their staple, augmented by green leaves and twigs.

Beaver are industrious creatures, storing up food for winter in a feed bed near the lodge below ice level. When there are lots of trees available, they will cut and store much more than they can use. They stay in the lodge and below the ice except during mild spells of weather when they come out and cut fresh food. It's a welcome change, apparently, from their water-soaked storage diet.

Beaver become very trap shy after springing a few traps or escaping from a trap. They will usually 'wring off," leaving a foot in the trap, unless the trap is fixed to drown the beaver as soon as it is caught. One trap shy beaver appears to "spread the word" for soon the whole colony becomes trap shy.

During the late 1800's, as a consequence of over-trapping, beaver were

thought to be almost extinct in New York State. Several stockings were made with beaver from different parts of the United States. Some of these were dark in color, almost black, while others were a light color. There are now both color phases and lots of in betweens. The darker pelts are the most valuable. Last season, large or blanket beaver pelts of the dark color brought as much as $24. The light colored ones of the same size, sold for about $20.

Beaver ponds frequently afford breeding places for other animals such as otter, mink and muskrats and some species of ducks nest and raise their broods there. There are circumstances too, when beaver impoundments have improved trout fishing, but what begins as an improvement may wind up as a loss if the waters are warmed or become more acid. One thing for sure, you can generally get a brisk discussion going whenever beaver trappers and trout fishermen get together.

The Opossum

A fairly new resident of the State and one that has extended its range northward in recent years. It is the only marsupial (pouched animal, like the kangaroo) in North America. There have been rumors of opossum being seen here as early as the late 1800's, but they were not here in numbers until the last thirty years or so. A series of long and very cold winters may reduce their population drastically, but they make a comeback during milder years.

Prefer farm land in this State, mostly in the southern and central parts. There are quite a few in the larger river valleys and the central lakes districts.

They den in woodchuck holes, rock ledges, blind ditches and a few dens have been seen in hollow logs. They are seldom seen in the daytime or during cold weather, so must spend a good share of their time in their dens.

Not much is known of their breeding habits in the wild. The young, about the size of honeybees, are born almost as embryos and make their way to the pouch where each fastens to a nipple; often more young born than nipples to serve them, and those late and left over are out of luck. The young remain in the pouch until they are furred out. After that they stay with the mother for quite a long time.

Their breeding season varies; all sizes of young are seen, even in late fall. Some very small ones, about the size of a rat, have been caught in traps in November along with some that are almost full grown.

The opossum will eat almost anything; they are truly omniverous. Examination of a good many stomach contents through the seasons shows their diet to be mostly vegetable, such as fruits and berries. Insects, mostly worms and grubs and some snails have been found in their stomachs. They also do considerable scavenging and work on any dead animals from horses down. They are thought to eat the eggs and young of ground nesting birds, but this is probably not extensive enough to do much harm.

They become a nuisance to trappers in the early fall by getting into traps that are set for more valuable animals. Their skins are worth only 25¢ or so and most trappers don't skin them unless they happen to be large, well-furred specimens.

The opossum has the well known trait of pretending to be dead or "playing 'possum" when surprised by humans or other enemies. At times, will fight other animals from cows to dogs. They have been seen standing off a whole herd of cows when caught in a trap in a pasture and to put up a scrap with a dog until shook up.

Some people believe that the so-called "playing 'possum" is really a state of shock caused by fright. Could be; they're about as stupid looking and acting an animal as any in New York.

The Bobcat

A backwoods animal, preferring thick spruce or similar cover, the bobcat will live in open timber at times. Has a liking for ledge rocks or piles of boulders and if the combination of thick spruce and rocks has a good snowshoe rabbit population, there is almost sure to be a bobcat around.

Most of the bobcats in this State are in the Adirondacks, Catskills or Allegany mountain sections. Their numbers have been increasing in the Adirondacks during the last thirty years or so. There was a time when 'cat tracks were seldom seen over much of the Adirondacks. Today they are common in almost all sections.

These animals den in rock ledges, holes among piled up boulders, under tree roots and under thick blow-downs. They are found using dens during severe weather and when young are born; otherwise prefer to sleep out. Beds are often seen in thick spruce thickets and blow-downs.

Their main breeding season is late winter and early spring, as with most animals, but there are exceptions to this and some young may be born at almost any time of year, as evidenced by the fact that very small bobcat kittens have been seen at all seasons. The number of kittens per litter is usually two to three, but as many as five embryos have been found in females.

Not much is known about the family life of bobcats. No doubt the kittens are on their own sooner than is true for most animals. This is typical of most of the cats.

They are strictly meat eaters, although some vegetable matter may be found in their stomachs. This is thought to be the stomach contents of other animals eaten by the 'cat. Snowshoe rabbits seem to be their staple in most sections. However, they are able to catch squirrels, chipmunks and birds at times. Will do some scavenging, mostly on deer carcasses. Often will camp close to a deer carcass and feed from it until it freezes too hard to be eaten. Will follow beaver trappers around and feed on the carcasses of beaver after they are skinned out.

Some people are under the impression that bobcats kill deer. It is possible that a few individual, large 'cats might kill a small weak deer, but many people who have spent much of their lives in the woods have never seen any evidence of this. Because an animal is feeding on a carcass does not mean that it killed it. Weasels feed on deer carcass at times too, and no one has ever charged them with deer predation.

Bobcats hunt mostly at night, but may be active in the daytime, too. They catch most of their prey by stealth; that is, by pouncing on things. They seldom chase anything very far.

Have the habit of piling their droppings on rocks or in some place that shows up well.

Their place in the scheme of things seems to be as a predator, mostly on rabbits. No doubt they help to keep a stable rabbit population in some sections where there are enough bobcats to do the job.

Bobcat fur is used mostly for trimming cloth coats. Their pelts are not worth much at present, but there have been times when they were worth trapping for the fur alone. Some Adirondack counties pay a good bounty on them so a few people trap for them when it is handy.

Bobcats seldom become numerous over a very large area in this State. At least, no concentrations of them have been heard of so far.

The Whitetail Deer

If one were to name the most debatable animal in New York, it might well be the whitetail deer. This wily animal is as widely scattered over New York as the people with whom they have learned to live and in some places they outnumber people.

The whitetail is the source of some of the finest sporting thrills in hunting and the inspiration of the tallest tales told. Deer provide a big economic revenue to the State as the No. 1 big game

animal and at the same time pose the biggest headaches to the forester, farmer and game manager whom they are continually trying to outmaneuver.

The whitetail comes in a variety of sizes, but average out quite like people —150 to 180 pounds for pappa and 110 to 140 pounds for mamma. Like people, too, there are a few real big ones—up to 300 pounds—where the food is good.

In the food department, the leaves, twigs and buds of various trees and shrubs are staples. During winter months, white cedar, hemlock, soft maple, moose maple and witch hopple are favorites. In the spring and summer months deer feed on grasses, herbs and even aquatic plants and in the fall months the fruits of wild apple, beechnuts and acorns are relished. In farming country, tastes turn frequently to domestic crops — blueberries, strawberries, cauliflower, potatoes, corn or what have you. Ornamental plantings — azalea, rhododendron, yew, and other choice landscaping plants— are on the whitetail's list, too.

The range of an average deer is surprisingly small—500 or 600 acres—but in some places such as the Adirondacks they will travel several miles from summer range high up in the mountains to winter yards in the coniferous lowlands. Deer are fond of water and will take to it to escape their enemies—insects or dogs—or just for the sheer pleasure of swimming. A deer can hide by submerging, too; just his eyes and nose will show. A big buck will tilt his head back to submerge even his bulky antlers. No short range swimmer, deer have been seen five miles from any shore.

Most deer hunters will tell you that smell, hearing and speed are in the deer's favor. Sight is secondary unless an object moves, but their big ears are like radar cones and detect the smallest sounds. A hunter upwind of a deer will probably never see his quarry. If he does see or startle him, by the time he takes aim, the deer may be moving 35 miles an hour in the open and clearing eight-foot obstacles with ease. In heavy brush, a buck with a big rack will keep up with the rackless; just tilts his head back and floats through.

To most, the deer is a silent creature, but old-time deer hunters know that they can and do bleat, bellow, bawl, snort and whistle.

Most whitetail fawns are born in June and are presumed to be scentless for protection. Their spotted "fawn" colored coats are perfect camouflage. Although they may be seen alone, they are seldom abandoned and people do them a great disservice by picking them up. Also, it's illegal!

The whitetails' appetite and numbers are the basis of the deer problem in New York. Their reproductive rates are high over most of their range and, considering that two dozen does and their offspring could become 3,000 in ten years (if they all lived and reproduced to the maximum), gives some idea of the dynamics involved. Their appetites can bring forest reproduction to a standstill or agriculture to a stalemate.

It is encouraging that real understanding is getting the upper hand over prejudice and pure sentiment in the management of the whitetail deer.

The Otter

This animal spends a good part of its time in the water. It is seal-like in looks and actions and can swim as fast as some fish. Likes to slide along on its belly on the snow or over the ground; does this by folding its front legs back along its sides and pushing with the back feet. Stays around water most of the time, but will go cross-country for quite a distance from one water course to another. The species is well distributed throughout the Adirondacks, with some in the Catskills and Hudson Valley and a few in other parts of the State.

It dens in old beaver houses and bank holes. Often lies out in the sun on rocks or on the ice and seems to like beaver ponds, especially in winter; possibly because there usually are frogs hibernating in the bottom.

The young are born during late March or April, usually two to three in a litter. Often the young stay with the female until late fall. This family group is often seen swimming together. Otter are active days as well as at night.

Food is crayfish, frogs, pollywogs and aquatic insects as well as fish. Prefers very small fish to large ones. Is often seen with a small fish in its mouth.

Otter are very playful and seem to have several "games" that they play together or separately. One of these is the well-known otter slide, down a bank and into the water; another is rolling over and over in the water. Sometimes two otter hook themselves together and spin through the water like a pinwheel.

They become almost tame near human habitation, but are shy back in the woods, especially if they have been shot at or where trappers are operating.

They are hard to hold in traps due to their hard muscles and tapering leg and foot. They also learn about traps by springing them with their chests as they slide along through shallow water. Some otter become so trap shy that they seldom go through the spillway on a beaver dam and will leave the country for a time when a trapper moves in.

Otter skins are at present quite valuable—$20 to $30. Not very many are caught in this State; only a few hundred each year. Most of these are caught accidentally in beaver sets.

The Mink

Mink are water animals, mostly; seldom are found far from swamp, stream or lake, although a few are land dwellers, especially in winter. They prefer heavily wooded or brushy swamps and streams. Some live along rivers, lakes and marshes. They like heavy cover, but on occasion will cross open ice or clearings.

Mink make use of dens the year around occupying muskrat burrows, rock holes and driftwood piles. Some live in beaver and muskrat houses. The males are travelers, often following a route that takes as long as two weeks to cover. Females tend to stay in one place.

The breeding season for mink is during late February and March. The male's tracks are often seen at this time in unusual places.

In most years, the males far outnumber the females. It is thought that the females, being smaller, are sometimes injured beyond recovery by the males while mating and are more vulnerable to accidents and predators.

The young are born during April and May. Average litters are about three to five. Young stay with the female until early fall. The litters and mothers are often seen in the daytime. The young appear darker than adults, some being almost an iridescent black.

Mink are meat eaters. Their diet varyies according to individual tastes and availability of foods. Some prefer a diet of crayfish, frog and fish; others prey on mice, rabbits, muskrats and ducks.

Some mink seem to prefer muskrats to all other foods, appear to have the knack of killing them. Other mink are seemingly unable to kill muskrats, and are sometimes killed by the 'rat. 'Rats have been seen ganging up on a mink and running it away and there are several eye-witness accounts of a single 'rat killing a mink. Mink are sometimes killed and chewed up by 'rats when caught in traps. This usually happens in marshes or other places where there is a high 'rat population. Either way, there's no love lost between these two species.

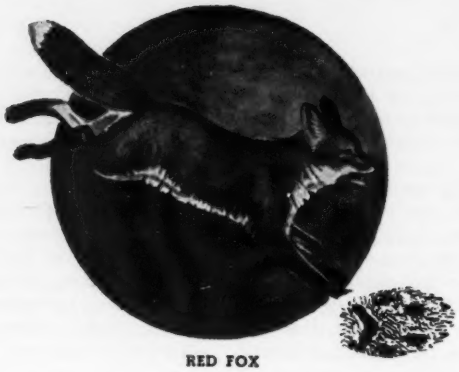
Owls and hawks prey on mink but probably to no great extent on the adults. Snapping turtles have been known to kill adults.

The Black Bear

This is the largest game animal in the State. Most sections of the Adirondacks, Catskills and Allegany mountains have

(Continued on page 26)

COYOTE front foot 2½" x 2" hind foot 2¼" x 1¾"

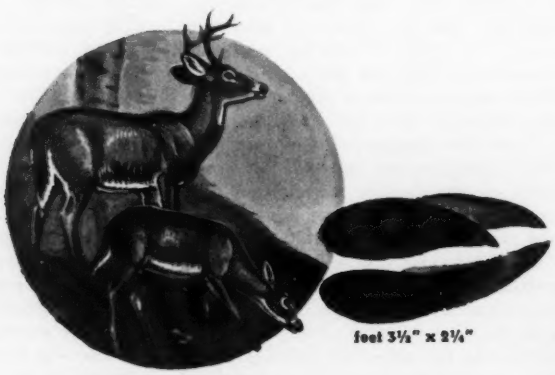


RED FOX front foot 2¼" x 2⅛" hind foot 2" x 1¾"

front foot 2" x 2" OPOSSUM hind foot 2¼" x 2⅛"

BOBCAT front foot 1⅞" x 1¾" hind foot 1⅞" x 1¾"

FISHER 1¾" x 2"

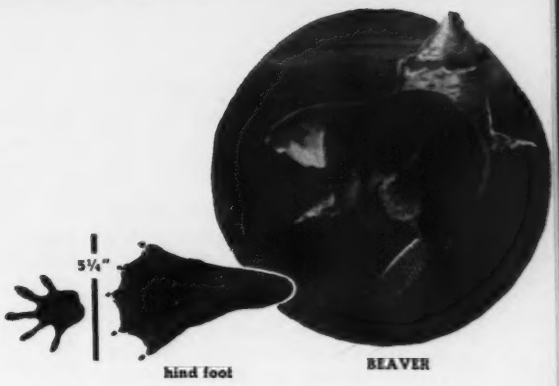


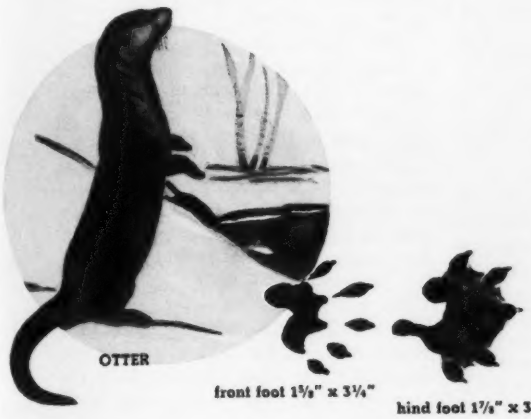
feet 3½" x 2¼" WHITE-TAILED DEER

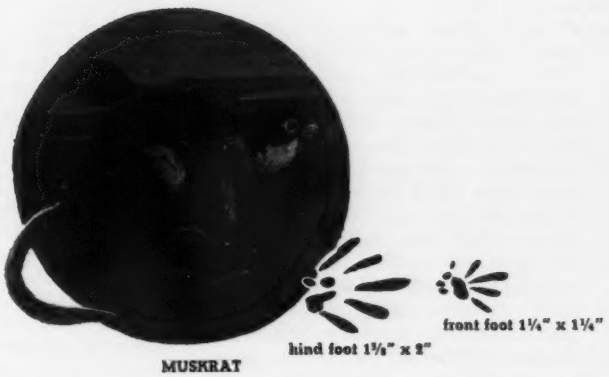
front feet hind foot 4" COTTONTAIL RABBIT

front foot 1" hind foot 2¼" GREY SQUIRREL

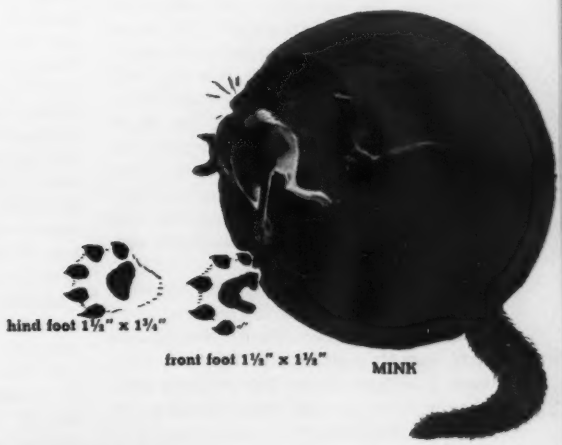
front foot ¼"
hind foot ⅝"
DEER MOUSE


5¼"
hind foot
BEAVER

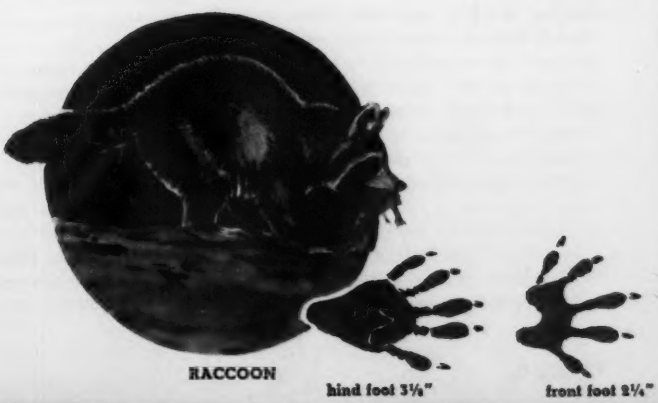

OTTER
front foot 1⅝" x 3¼"
hind foot 1⅞" x 3⅛"


front foot 1¼" x 1¼"
hind foot 1⅜" x 2"
MUSKRAT

front foot 3¼" x 4½"
hind foot 3½" x 7"
BLACK BEAR


hind foot 1½" x 1¾"
front foot 1½" x 1⅛"
MINK

front foot 1¼"
hind foot 1½"
STRIPED SKUNK


hind foot 3⅛"
front foot 2¼"
RACCOON

(Continued from page 23)

a good supply of bears. They are considered by some hunters to be the hardest game animal in North America to get a shot at.

Bears change their range with the seasons and with the food supply. They den up in the winter and often den temporarily during early fall cold snaps and deep snows, only to come out again when the weather moderates. They choose cold places for winter denning as a rule, seeming to favor the north sides of mountains and thick swamps. Perhaps they realize that thaws during the winter are not so apt to flood dens in such places.

Bears seldom use caves for denning, usually dig a hole under tree roots or pile of boulders and seal themselves in with leaves and twigs scraped up from the ground around the den. Sometimes den under thick spruce or blow-downs where the snow seals it in. Some dens have been found in hollow trees and stumps.

Young are born during the denning period. Usually two cubs are born; three sometimes. Young stay with the mother until the next denning season. It is the opinion of some woodsmen that if the mother is killed in the fall, the young bears won't den up but will wander around until they die.

Bears are omniverous, eating almost anything. During early spring they will eat hellebore, skunk cabbage and almost any plant, also clean up the carcasses of deer that have been winter-killed. Worms, snails, grubs, ants and other insects are eaten at this time, too. Bears roll rocks and logs over to get at insects and tear up old stumps for ants. Chipmunks and red squirrels are dug out of their holes and eaten along with any stored food these small animals may have left over from winter.

In summer and early fall, berries, fruits, beechnuts and acorns make up most of their diet. They climb beech and cherry trees, break off the limbs and pile them up in the crotches after they have eaten the fruits, making the so-called "bear nests."

Bears stop feeding for a week or so before denning and the stomach and intestines of a denned bear, or one about to den, are usually empty.

Quite a few bears have found that town and hotel dumps afford an easy living. Some others have found lumber camps good for a handout.

People sit in their cars in the evening and watch the bears at several garbage dumps in the Adirondacks. This has become more popular than deer watching. Frequently, people are not content to watch from a distance but move in to get a good close-up photograph. One of these days all the exposure will show will be the inside of the bear.

Man seems to be the only enemy of the bear. In spite of long open seasons, they appear to be increasing in most sections, even in such heavily hunted places as the Catskills.

The Muskrat

Here is the most numerous and widely distributed fur-bearer in this State. The highest populations are in the marshes along Lake Champlain, the St. Lawrence River, Lake Ontario and the marshes of central New York.

Muskrats prefer cattail marshes but live in streams, lakes and ponds. The largest and best furred 'rats come from the cattail marshes in central New York.

They build dome-shaped houses of aquatic vegetation and also dig bank burrows. Young are reared in either house or burrow.

The breeding season starts with spring break-up, and they have from two to three litters of three to eight young a year. At times, the young of the first litter breed late in the summer of their first year and bring in a litter in about 21 days. This is the shortest gestation period of any New York fur-bearer except the opossum. Often two litters from the same female are in the den at the same time. The female cuts food and brings it to the den for the young until they are able to forage for themselves. It's obvious that this keeps her pretty busy.

Cattail roots are the preferred winter foods. Other aquatic plant roots such as bulrush, burr reed, duck potato, wild rice and sweet flag are also used. Where none of these are available, 'rats can exist on pond weeds, lily roots, willow shoots and clams. Sedges and the shoots and stalks of some aquatic plants are summer foods.

During summer and fall muskrats have been known to travel overland, apparently looking for a new home.

It is a mystery how 'rats are able to leave and return to their dens under the ice. Often the ice is a foot or more thick and covered with snow. It must be pitch dark in the water. Skin divers and those who have used a S.C.U.B.A. know how easy it is to become lost under water, even when it is clear.

Owls, hawks, mink and foxes prey on muskrats but don't seem to lower their population much due to their fast rate of reproduction.

Trapping and disease, exceptionally hard freeze-ups and droughts probably are the biggest controlling factors for muskrats, but they can make a fast comeback in one season when conditions are right.

The Coyote

This species is well distributed throughout the Adirondacks, with a few recorded south of the Mohawk River. Prefers to be near open land, such as burns or where farms or clearings border on the woods, but can and does live almost anywhere.

Coyotes use ground or rock dens when the young are born and for a time after. These dens are found normally on the side of a hill or in a gully. Most of the year, though, the animals sleep out. Beds have been seen in exposed places like open timber, rock ledges and burns in below zero weather.

Some places have what seems to be a constant population; other places a seasonal population and, in still others, coyote numbers seem to come and go from time to time.

They are active in the day as well as at night and their calls may be heard at anytime. They often travel in family groups—adults, pups and yearlings. A few appear to travel alone but this seems the exception.

The main breeding season is in March, although this may differ as much as a month or more. Litters are from two to five, with three as an average. As in the case with most canines, the male helps raise the pups.

There has been a lot of speculation on the possibility of dogs and coyotes interbreeding; some people are under the impression that all of these animals are crossed with dogs or have some dog blood. This is based on pure guesswork and on the odd coloration of a few specimens. It has been proved that coyotes and dogs can cross but it happens very rarely and for the most part the Adirondack coyote is all coyote.

The food habits of this animal varies according to season and locality. A coyote will eat almost anything that is edible. Insects, such as June bugs, grasshoppers and grubs, fruits and berries as well as animals, from mice to deer, are all used. They also do a lot of scavenging as well as hunting. Much of their meat diet is carrion. They can catch snowshoe rabbits in most types of cover and seem to prefer them to other game in most sections.

Their chief place in the scheme of things seems to be to act as predators and scavengers. Much sport can be had in trapping them, by people who like to trap, and in most of the Adirondack counties it's a profitable pastime as most counties pay a liberal bounty.

They have no known enemies except man and he is not very successful in controlling their numbers. Their range is spreading and they are at least hold-

ing their own. Man is only able to keep a local population down temporarily. As soon as the traps are taken up and a few years pass, the coyote population is back where it was before. Some coyotes become very wise and trap shy. These individuals and others moving in are the breeding stock.

The only disease that has been noted in New York State in coyotes so far is mange. It is not known whether the disease is fatal.

The Skunk

Is well distributed throughout the State; most plentiful in farm lands; a few in the backwoods; are often seen in villages and suburbs of cities. They are seldom abroad in the daytime, but may sometimes be observed on dull, misty days.

Skunks frequently den in woodchuck holes or rock crannies. In a pinch, they will even dig their own dens. They spend the day in dens the year around. Den up during cold weather and deep snow but come out during mild weather. As many as five skunks have been known to den together.

The young are born in May or later and they are able to use their scent glands before they are furred out. As many as six young have been noted in a litter, while three to four are common. Young skunks are often seen crossing roads in single file, seeming to be on the track of the mother. Usually the litter breaks up in late fall or early winter.

Their food is mostly insects, grubs, worms, snails, grasshoppers and June bugs. Often they will dig out wasp and bumble bee nests and eat the larva. Also dig out mouse nests and raid ground-nesting bird nests. They do considerable scavenging and will eat almost anything.

The little round holes that they make when digging out grubs and larvae are often seen in meadows and crop lands. These are made by a single swipe of the claws, then the nose roots the grub out, leaving the neat round hole. There is a wide variation in the markings of the fur. Some are almost all white, others are almost all black; most have the white stripes in varying lengths and widths. The darker are the most in demand by fur buyers. Skunk fur, at times, has been very popular, but now the best skins are worth only a dollar or so.

Disease seems to be the chief controlling factor of skunk populations. They are almost wiped out by several different diseases from time to time. Many are killed on roads; as many as 100 have been seen dead on the roads in one day's travel.

The Raccoon

This animal is widely distributed over the State. Highest population seems to be in farm lands. Spends much of its time around water in summer and early fall.

Raccoons prefer hollow trees for denning, with rock ledge holes as second choice. Sometimes live in ground holes when others are not available. Lie out in trees during mild weather. Den up during cold weather or deep snow; come out during mild spells.

Their breeding season is in February or later, with young born in April. Average litter is three to five. Young stay with the mother 'til late fall; usually 'til denning-up time. The mother and young are often treed together by dogs during the hunting season.

The raccoon probably has as wide and varied a diet as any animal. Crayfish, frogs, pollywogs, fish and clams are caught from the water. They use their hand-like front paws for this. Fruits of all kinds are eaten in season. Wild grapes are often eaten almost exclusively when available in quantities. Insects, including bees and their larva, tree grubs and snails are used at times. Night crawlers and smaller worms are eaten, mostly in early spring. In some localities, raccoons root up and turn over large sections of sod to get grubs and worms.

'Coons have become quite tame at times, often raid garbage cans in villages. In some places they almost destroy the sweetcorn patches in gardens and it's frequently necessary to kill the 'coons in order to get any corn on the table. They often do considerable damage to field corn, too, attacking it and pulling down the ears when it's in the milk stage.

Their fur is not very valuable at present. Some is used for trim, and coats are made from the sheared and dyed skins. Three dollars is about top price for large, heavily-furred skins.

Man and disease are their chief controlling factors. They are subject to several diseases that are fatal. Quite a few are killed on the roads, and hunters with their hounds take quite a few in early fall. Not many are trapped, due to the low price of the fur.

Roast raccoon, when properly prepared and cooked, is a very tasty meat.

The Red Fox

The red fox is well distributed throughout the State, living from lowland cattail marshes to the tops and sides of the highest mountains. Given free choice, however, favorite habitat is farmland of the somewhat rundown variety, with plenty of brush lot cover. Dens are used when raising the young and usually they will have more than one den so they can shift around from one to the other. The adults sleep out most of the time, but use dens during stormy winter weather. Sometimes a sick or wounded fox will stay near a den and go in when molested. Foxes will dig dens but like to find a woodchuck den that can be modified and enlarged to their liking. Seem to prefer dens in sandy soil, but will den anywhere at times in rock holes, stumps and hollow logs as well as in the ground. When it comes to setting up housekeeping, they seem to prefer the edge of woods next to open fields.

Breeding season for the red fox is in February and March, with young being born during April and May. Litters average four to five. Young are black when born and have tails usually tipped with white, although some don't have the white tip. The pups start turning yellowish in a couple of weeks and are red or yellow when they first come out of the dens at a little over a month old. At times, there is more than one litter of pups in the same den or in dens very close to each other. They get along very well together under these circumstances with only the usual scrapping among the pups.

The male fox hunts for the female and the litter for a while; will put food near the den and call the pups to it. Both parents help the pups get food after the pups are old enough to travel.

The diet of the fox is a varied one. Much of their food during summer and fall is vegetable, such as fruits and berries. Foxes also do a great deal of scavenging, especially in farm country and where animals and birds are killed on the roads. Insects are used, too, mostly June bugs and grasshoppers. But mice are considered to be the staple for foxes, and almost anyone who has an opportunity to watch foxes in the wild will be pretty sure to witness them pouncing on mice and carrying them away in their mouths.

The red fox is an exceptionally quick and active animal. It's probable that it can catch almost anything it sets out after. The carcass of a skinned fox resembles that of a miniature greyhound; its build accounts for the great speed and agility. A running fox seems to float along without effort. Foxes can make sharp turns at high speed by using their tails as rudders to help them change direction.

Foxes, with their fluffed-out coats, look bigger than they really are. They are actually very light in weight; 6 to

(Continued on page 35)

Tioga County plantation of sheared "Christmas trees" ready for harvest at 6 to 7 feet in height

tions where the planter puts all of his eggs in Dame Nature's basket and leaves it up to her.

Enumerated are some of the problems and causes in the order of their usual occurrence:

A. *The trees don't develop properly*—slow growth, misshapen and poor color. mainly because of

1. Poor choice of species for the site.
2. Competition of heavy weed and sod or brush cover.
3. High water table generally in low-lying areas.

This Christmas Tree Business

by W. W. Clingan
and E. H. Huber,
New York State
Conservation Department

NOT too many years ago most people looked upon the plantation-grown Christmas tree as the by-product of reforestation, the major objective of which was not Christmas trees, but timber production, watershed protection, wildlife cover or perhaps only the aesthetic improvement of the landscape. Not so today. In the past decade the picture has radically changed and the growing of Christmas trees has become a business in its own right. This article is written for landowners contemplating this field of endeavor and those already in the game who perhaps have not yet come face to face with all of the hazards involved. To be successful, the present day grower must be well informed on a variety of subjects if he is to meet the competition that is growing stronger each year.

To begin with, many landowners have the mistaken idea that all there is to successful Christmas tree growing is to plant a thousand or so seedlings per acre on 5, 10, 50 or even 100 acres of idle or abandoned farmland. Then, while you simply wait for the money to roll in, sit back and let nature produce thousands of beautiful trees in an optimistic 5 to 7 years. Well, nature will take its course all right, if you let it, but the results will be far from what the uninitiated may expect. Oh yes, the trees may grow, but frequently not the way we'd like them to. Often they will grow too slowly, for one or more reasons, or perhaps so fast that they literally outgrow the specifications of a good Christmas tree.

Let's take a look at what happens in many so-called Christmas tree planta-

4. Proximity to existing woodlands or high fence rows that shade a part of the plantation.
5. Poor spacing—trees too close for proper development.

B. *Trees doing fairly well*—that is up until

1. Insects, in local or epidemic proportions attack:

a. Pine sawfly—*Neodiprion sertifer.*
b. Root collar weevil—*Hylobius radicis.*
c. White pine weevil—*Pissodes strobi.*
d. European pine shoot moth —*Rhyacionia buoliana.*
e. Spruce gall aphid—*Chermes abietis.*
f. Pine needle scale—*Phenacospis pinifoliae.*

2. Disease strikes a blow:
   a. Needlecast of pines and firs.
   b. Pine shoot blight.
   c. White pine blister rust.
   d. Sooty pine mold.
3. *Animals and birds attack in force:*
   a. Field mice—girdling.
   b. Rabbits—girdling and clipping of newly planted seedlings.
   c. Deer—browsing of leaders and laterals.
   d. Pine grosbeaks—bud feeding.
   e. Crows—bend over terminals in growing season by perching on them.

C. *Trees growing exceptionally well—too fast:*
1. Leaders with 15-24" of annual growth.
2. Side branches (laterals) 12-14" annual growth.
3. Poor proportion of width to height.
   a. Too tall and skinny.
   b. Too broad and squat.

D. *Trees in perfect condition disappear suddenly:*
1. Enemy No. 1—fire, accidental or incendiary.
2. Enemy No. 2—the thief *(Homo sapiens)* with axe, saw or shotgun (yes, they've been known to even blast them off the stump). "'Twas the night before Christmas!"

There, rather abbreviated and no doubt incomplete, are some of the probable hazards to the growth of a successful crop of Christmas trees. We do not list them to put the potential grower in retreat, but rather to apprise him of the truth of the situation so that he can group his forces for the battle that lies ahead.

All too often the public has been prone to exclude trees from that community of growing plants we coddle to bring out their inherent beauty and utility. We weed and fertilize our garden plants; we spray our rosebushes; we trim our hedges and even some of us, albeit too few, manage our woodlands scientifically. In general, however, trees are pretty much taken for granted, so why shouldn't the average man take the same view when he's thinking of Christmas trees? After all haven't they been growing in the wild for centuries without any help from man?

What then are the considerations to be made when planning a commercial Christmas tree plantation? You may already own the real estate or you may have a site in mind. In either case, before you go any further, evaluate the land as to its suitability for Christmas tree production. Such items as accessibility, soil type, drainage, cover and topography all have a bearing on the practicality of the situation. If your land is well drained (wet sites are out), neither too sandy nor of exceptionally heavy clay, not too steep for equipment operation, and resonably free of brush, then the first hurdle is cleared. A lot of this you will be able to figure out for yourself, but don't guess; have an expert look before you leap.

Here in New York the Conservation Department, under its Forest Practice Act, maintains a staff of professional Foresters available for personal advice and assistance on all phases of forestry, including the establishment and management of Christmas tree plantations. Another source of help is the New York State Christmas Tree Growers' Association, a membership corporation, its objective being mutual assistance through the exchange of information on all aspects of the Christmas tree business.

Now, we will assume that all's well, that you have proceeded with acquiring the land—where do you go from here? The next phase is the layout—a general overall plan to help determine the planting schedule and to order trees for the coming spring planting season. Layout planning involves the consideration of factors that will govern future operations; spacing of the trees, spacing of the rows, direction of the rows in relation to slope, and provision for roadways and firebreaks. Each of these will have a bearing on the efficiency of future operations. The generally accepted recommendations are that the rows should parallel the direction of easiest and safest equipment operation, firebreaks or lanes which can be used for harvesting should be no more than 120 feet apart and 10 to 15 feet wide. If you have ever helped harvest Christmas trees you know what we mean when we say that the first tree you drag to the road is relatively light, but tree number 300 weighs about 300 pounds, especially if, after lugging it 100 yards or more, you have to heave it to the top of a truckload. So, break up your plantation with plenty of harvest lanes. As for the individual rows, the late Jim Kennedy, for many years District Forester of the Conservation Department at Cortland, once said: "A planting of trees with crooked rows and without roads is not a plantation at all. It is just a mess!" Crooked rows are a real headache when it comes to mowing weeds. More about that later.

Now for the selection of species. This is usually determined by the factors of site, personal preference, market demands, availability and cost of stock, geographical location and others and not necessarily in the order mentioned. On the average from 1,200 to 1,500 trees can be planted per acre. The exact number, of course, is dependent on the actual spacing. Currently, in New York State, the market preference is for Scotch pine with white spruce gaining in popularity as evidenced by extensive plantings in recent years. Other species planted in considerable volume are Norway spruce, red pine, Douglas fir and white pine. Balsam fir, the king of the native and naturally-grown Christmas trees, is pretty much a black sheep for plantation culture. Successful plantings of this species are few and far between.

So, let's get back to Scotch pine, the queen of exotics (see CONSERVATIONIST of Dec.-Jan., 1949, "Cinderella Goes to Town," by E. W. Littlefield). This species has had somewhat of a checkered career here in New York. During the early Thirties, thousands of acres were planted with stock that resulted in exceptionally good survival and growth, but also had a tendency to such crookedness and poor form in the pole and sawlog stages that its future value became questionable. Not much could or has been done with these earlier plantations perhaps with the exception of the harvesting of pulpwood where a nearby market existed. Then, some twenty years ago, a bright spot appeared on the horizon. That was the recognition and acceptance by growers and consumers alike of this species as an unexcelled Christmas tree. Now, this has been dimmed to some extent by the inherent tendency of some strains of Scotch pine to turn an off-color, yellow-green, in the late fall and early winter. Naturally, such a change detracts from the beauty of the tree and its value in the market place. Nursery men and growers are meeting this problem by obtaining stock from seed sources known to be free of this unfortunate characteristic. For those of you already "blessed" with such chameleon-like Scotch pine, the current recommendation is to sell and cut your trees prior to October 1st while they are still green. They can be stored on their butts under light shade. No color change occurs after cutting and the trees will

keep well. Color spraying has been in the development stage for a few years and holds some promise as another practical cure for this problem.

It is not our intent here to go into the complete detail as to selection of species. Colleges of Agriculture and Conservation Departments of most states have educational material available on all phases of this subject which should be obtained by anyone seriously considering the Christmas tree business. Best of all, as previously noted, get in touch with your State Conservation Department Foresters. Phone or write the District Forester in your area.

Once the trees are ordered from State or commercial nurseries thought must be given to planting which, in most areas, should be done in the spring. The effects of frost-heaving will be minimized if the trees have one growing season to establish themselves. Even so, many a one-year-old plantation, on heavy soil, has been ruined due to alternate freezing and thawing which literally lifted the seedlings out of the ground.

The days of the large hand planting crews are long since gone. Mechanization has taken over here as in agriculture. A tree planting machine—not much more than a modified and beefed-up cabbage planter that is operated by one man plus tractor and driver, can plant from 5,000 to 10,000 trees per day. A number of these machines are on the market at prices from $200 to $500. Here in New York, there are many tree planting contractors who will handle the complete job from nursery to planting for $15 to $20 per thousand. Of course, if only a few thousand trees are involved, they can be hand planted using a grub hoe; that is, if hard work is not a deterrent. On the average, two men, spelling each other digging holes, can plant about 1,200 trees per day. It goes without saying that the seedlings should be carefully handled prior to and during planting to assure a high percentage of survival.

Now we have reached the point where many have viewed the job to be complete, except for the harvesting of the trees and the banking of the profits in the years to come. Most of these folks, though, never quite get around to the latter. It seems that somehow for them things don't work out according to "plan." So let's be a little more realistic and practical; let us assume that we are going to *manage* our plantation, to make certain that as many saleable trees as possible will be produced in shortest time. We'll give Mother Nature an assist or two. The trees are in the ground and growing. In fact, in the case of pine, they will probably grow too fast. In each

Above: Scotch pine in candle stage. Note multiple shoots from last year's shearing. Right: Shearing's important in developing superior tree; properly done when in candle stage as above

of the first two growing seasons, pines generally grow 6 to 10 inches in height and side branches will grow proportionately. Then in the third growing season, a majority of the trees will start to stretch and grow as much as 18 to 20 inches in height. This is fine; that is, except for the Christmas tree business. A ten- and fourteen-inch height growth per year and proportionate side branch growth will produce ideally shaped trees by the time they become 6 or 7 feet tall. So, the grower of pine must go into the plantation during June and July armed with pruning tools, and cut back the leaders to the desired height and shear the side branches to develop and maintain a conical shape. Spruces may be sheared later in the growing season. Sounds easy, and it is! But June and July are apt to be hot and humid; the flies, mosquitoes and other insect pests are out in force and seem to prefer perspiring tree growers. Despite harassment, however, one man can shear 50 to 80 trees per hour, depending on the size of the trees, his own native ability and the kind of tool used. There are several shearing tools that are suitable including hand clippers, hedge shears, machetes or sickles. Proper use of any of these require a certain amount of dexterity and considerable know-how. Also, each tree will need some treatment every year after the first shearing until it reaches the saleable size of about 6 feet. In other words, three or four annual shearings are in order.

In the meantime, a sharp lookout for insect tree pests is quite necessary. Probably the most startling effect is provided by the pine sawfly. After a few years of loving care by the grower in carefully shaping and shearing, the sudden discovery of numerous trees without needles —the results of a few days' feeding by the sawfly—is, to say the least, something of a blow! An immediate attack on this enemy is called for and the weapon most successful is a sprayer loaded with DDT ammunition. Outbreaks may be local or epidemic and may occur several years in succession requiring considerable spraying to stop the advance. The important point here is that constant surveillance is a must, if insect and disease pests are not to out-flank your objective. Depending on the size of the job, a hand sprayer or a mobile power sprayer or perhaps even airplane spraying may be required. Something must be done if the plantation is to be profitable and it must be done now!

Other sources of damage to growing Christmas trees are deer, rabbits, squirrels and field mice. The first three will clip off terminal and lateral buds and twigs causing misshapen trees or even cut them off at the ground line. Mice will girdle the trees at the base. Each of these animals can be curbed to a degree, at least, by using suitable repellants or poisons. However, control measures involve additional labor and expenditures for chemicals and equipment. Also, they require a plentiful supply of self-restraint. The tendency to "blow one's top" seems to be a part of this business.

Now for another problem. The late

Josh Cope, former Extension Forester at Cornell University for many years, once replied to an inquiring tree grower: "The best way I know to grow hardwoods is to plant pine or spruce." How true! How true!

Four or five years after planting conifers in an open field or pasture, hardwood seedlings will really launch an invasion. The cover and protection provided by the evergreens seem to stimulate the growth of hardwood seedlings, brush, weeds and grass. All of this undesirable shrubbery must be kept under control lest it seriously hinder the production of quality Christmas trees. Here again the best means of control is through the regular use of brush-killing chemicals or in some instances, an annual mowing is more practical. Mowing has the added advantage of keeping all growth down permitting normal development of the lower branches.

Now if you have been on the job faithfully for the past 7 to 9 years since planting, you should have at least 700 trees per acre out of each 1,000 that were originally planted. However, the 200 to 300 unsaleable trees left in your plantation after your final cut are best clear-cut and destroyed if you intend to replant the area next spring and start the cycle all over again.

For the past few years the prices paid growers for trees on the stump have held fairly steady, with Scotch pine, the standard, bringing 75¢ to $1.50 depending, of course, on such factors as quality, size, color, shape, accessibility and others. The U. S. Department of Agriculture

(Continued on page 35)

Pleistocene Antlers

A Clue to an Early New Yorker

A few years ago, while carrying out excavations, including digging ditches for fish hatchery water lines at Cedar Springs, near Rochester, Conservation Department workmen unearthed several deer antlers, one of the best preserved of which is pictured here.

These antlers were shed by what we would guess was a pretty fair whitetail buck in an area that, at the time, appears to have been a swamp or bog. At any rate, the antlers were found several feet below the surface associated with woody and other organic material typical of such an environment.

So, what's remarkable about this? Don't buck deer shed their antlers every year? Indeed they do, but this antler and the other found in this same location and strata were shed perhaps as much as 25,000 years ago.

Examination by paleontologists of these antlers and the organic materials with which they were associated indicate that they date back, geologically, to the late pleistocene period. This is relatively recent as geologic time goes, but it's a long, long while ago measured by man's time. That was a time of glaciers in the country, too, and it's interesting to speculate on this and the other hazards that must have confronted deer in this early age of mammals.

Incidentally, the exceptionally fine preservation of these antlers over these eons of time is explained by the fact that they were embedded in and beneath a rather thick layer of marl; a dense calcareous substance that served to exclude the air.

The antler pictured here, together with other shed antlers found in the same situation, were turned over to the New York State Museum and Science Service. It was hoped that through their associations with other research facilities, tests could be run (carbon 14 test) to pin down the geologic period of deposition more precisely. Unfortunately, however, the antler surfaces assumed a chalky appearance and texture almost immediately upon exposure to air. Counteracting this with a coating of varnish saved the antlers but threw the possibility of an accurate carbon 14 test out, according to the Museum report.

the back of the book

Pheasant turnover

In one township in Minnesota, an examination of census, sex ratio, bag check and banding data on pheasants suggested these tentative conclusions: Roughly 70 per cent of the pre-season cock population was shot during the open season in 1957 and 1958. Pre-season mortality of banded birds was calculated to be about 12 per cent both years. The turnover rate of cock pheasants from just prior to the 1957 hunting season to just prior to the 1958 hunting season was calculated to be 74 to 80 per cent based on roadside census data. Based on banding data, the turnover rate was 74 per cent. The turnover rate of birds banded as juveniles was 75 per cent and of birds banded as adults, the rate was 60 per cent. Two-thirds of the annual mortality of cocks was caused by hunting and one-third by unknown other causes. The turnover of hens from just prior to the 1957 hunting season to just prior to the 1958 hunting season was calculated to be 73 to 74 per cent.

Outdoor manners

One of the greatest contributions Boy Scouts are making to conservation is their effort to arouse public recognition for conservation needs, including that of decent outdoor manners.

Setting an enviable pattern for Americans of all ages and creeds, the "outdoor manners" of Scouting are now incorporated in the Outdoor Code of the Boy Scouts of America. Here they are and worthy of everyone's attention:

As an American, I will do my best to:

Be clean in my outdoor manners—. I will treat the outdoors as a heritage to be improved for our greater enjoyment. I will keep my trash and garbage out of America's waters, fields, woods and roadways.

Be careful with fire—. I will prevent wild fire. I will build my fire in a safe place and be sure it is dead out before I leave.

Be considerate in the outdoors—. I will treat public and private property with respect. I will remember that use of the outdoors is a privilege I can lose by abuse.

Be conservation-minded—. I will learn how to practice good conservation of soil, waters, forest, minerals, grasslands and wildlife and I will urge others to do the same. I will use sportsmanlike methods in all my outdoor activities.

More people

According to reliable estimates, there will be twice as many people, twice as much income per person, 1.5 times as much leisure and nearly twice as much travel by the year 2000 as compared to 1950. Translated into terms of recreational demand, the challenge of today for recreation tomorrow is all too clear.

Kinne F. Williams

On October 13, 1960, more than one hundred Department people, friends and relatives of the late Kinne F. Williams gathered in the Adirondacks in a quiet dedication to the memory of this man who had devoted so many years of his life to conservation and to serving the people of this State.

The plaque, pictured, unveiled on the occasion by E. W. Littlefield, Assistant Commissioner for Lands and Forests, is located at the entrance to the amphitheater at Fish Creek Ponds Public Campsite, an area that Kinne loved well and visited repeatedly over the years.

Pollution control

Federal grants totaling $180 million have been made to 2,156 local communities to help build sewage treatment plants since the beginning of the federal water pollution control program in 1956.

Since the beginning of the program under Public Law 660, 1,031 sewage treatment plants and facilities have been completed, at a total estimated cost of about $300 million. Projects now under construction total 682, at an estimated cost of about $320 million. During this period, more than 21,000 miles of streams have been improved for drinking water, recreation, fish and wildlife and industrial uses.

The 2,156 federal grants, made since beginning of the anti-pollution program, serve a population estimated at 21 million persons—more than the combined populations of the states of New York and North Carolina. In order to obtain federal grants to build sewage treatment plants, communities have put up almost five local dollars for each federal dollar.

Christmas tree outlook

Based on wholesale market reports by the New York State Department of Commerce, the Christmas tree market is not expected to be much different from that in 1959. There are two noticeable trends this year, however—(1) some large tree buyers have gone into the producing field, and (2) more producers are planning to retail their trees.

It is expected there will be fewer Christmas tree wholesale buyers of the "speculator" type and more emphasis is anticipated on quality trees by the regular buyers. This should result in better quality trees in the living room and fewer trees left on the lots the day after Christmas.

We have always taken a dim view of large numbers of unused trees left on the sales lots and wholeheartedly endorse any reasonable trend which will help eliminate this wasteful situation.

Redheads retrapped

The basic aim of the redhead duck release program is to establish this as a breeding species in New York. Thus far, the results have been mediocre. Few of the breeder releases have nested and both the breeders and five-week-old ducklings have proven quite vulnerable to gunning. One ray of hope in the program has been the number of released redheads trapped during the winter banding activities on Canandaigua and Seneca lakes. During the January through March diving duck trapping season of 1960 some 31 hand-reared redheads were caught.

Of the 260 immature redhead ducks released at 5 weeks of age during the summer of 1957, only two males were retrapped; a return of only 0.8 per cent. There were no releases of adults in 1957. Three of the 1958 releases were retrapped in 1960, all on Canandaigua Lake. These constitute 0.6 per cent of the 158 adult releases, and 0.5 per cent of the 431 immature releases in 1958. In 1959 the only releases made were adults during April when 223 pairs plus 156 excess birds (154 male and 2 female) were released. Some 26 of these were retrapped in 1960 including 15 males and 11 females representing 8.6 per cent of the paired releases and 4.4 per cent of the excess male releases.

The retrapping of this number of the latter group of birds 9 to 11 months after their release in the wild on well-known redhead winter grounds seems rather amazing to us, but during the last two waterfowl seasons the laws have become increasingly stringent on this species. This is reflected in the lowered recovery noted on both the hand-reared redhead ducklings and the adults, as well as in the wild-trapped redheads. With these species and canvasbacks "off limits" to hunters this year, it is possible that enough of our liberated redheads may survive to establish several more or less permanent breeding populations.—D. Benson and D. Foley, *Conservation Biologists*

Little Hoosick

The Little Hoosick Watershed Project in Rensselaer County is one of the largest of four pilot watersheds in New York State.

It's interesting to note that after six years of operation there are 78 owners within the watershed signed up under the Forest Practice Act. On these cooperators' lands, over 280 acres have been marked for selective timber harvest with a yield of more than one million board feet of lumber. In addition, 250 acres have been treated to improve quality and growth. Water control structures have been installed on several miles of logging road.

The planting of more than three-quarters of a million trees on these watershed lands is of prime importance in water and erosion control.

Arthur G. Draper

The passing of Arthur G. Draper, General Manager and Member of the Adirondack Mountain Authority, came as a shock to his many friends and associates. "Art" was only 51 when he was stricken with a heart attack while attending a dinner of the annual forum of the New York State Winter Sports Council on October 15. He was a former president of this Council and had just outlined plans for bringing the next North American ski championships to the Whiteface Ski Center.

"Art" studied at Exeter, Harvard and Cambridge in his youth and became a reporter for *The New York Times* in 1935. Two years later, he was assigned to cover the centennial observance of the first ascent of Mount Marcy, New York's tallest peak, while a reporter with the *Times*. The call of the Adirondacks lured him away from journalism, and the rest of his life was spent in close association with the Adirondacks and their great natural resources.

Successively, he was a Forest Ranger at North Creek and then Senior Conservation Publications Editor for the Department and this magazine. After a brief stay at this, he became an Assistant Civil Engineer, then Principal Park Superintendent at the Belleayre Ski Center. In 1958, he was appointed as General Manager of the Whiteface Mountain Authority (now the Adirondack Mountain Authority) and was instrumental in developing this outstanding ski center.

A ski enthusiast, during the war, he was with the 86th Mountain Infantry Regiment—ski troops, returning to the ranger service after the war.

Mr. Draper lived in Wilmington with his wife. Surviving also are a daughter and a son.

Fellow employees are going to miss the genial, soft-spoken six-footer. Those associated with him on this magazine won't ever forget him as the magazine's early stylist, writer, and later, willing contributor to its pages.

Forest survival

Most people have no idea what trees are up against in their struggle for survival in the wild. When you consider what they have to contend with, it almost seems a miracle we have any trees at all.

The white pine, for example, is a common tree in New York. The average white pine produces more than 100,000 seeds a year, but before the seeds even fall to the ground, some will be gobbled up by hungry birds and insects. There are weevils that lay their eggs right inside the pine cones. When the larvae hatch, they start feeding on the seeds. Birds, like the nuthatches and crossbills, will also help themselves.

Squirrels will climb the trees and take not only the seeds, but the pine cones, too. And when the seeds are ripe and finally fall to the ground, many more will be eaten by deer mice. So before they can even begin to germinate, a lot of the seeds have already disappeared.

Then when the seeds that are left take root, their troubles really begin. They have to compete with bigger trees for water, food and sunlight. Fungus disease takes its toll. By the end of the first two years, only one out of every ten white pine seedlings will still be alive.

Those that do survive now have mice, rabbits and deer to contend with. Mice and rabbits may eat the bark down at the base of the tree while deer may clean off the leaves and twigs. And, too, there's the competition with other trees in the forest for food and light.

At the end of 20 years, there may be 300 or 400 white pine trees remaining, although we started with more than 100,000 seeds! And at the end of 60 years, when the white pine reaches maturity, only one hundred may still be around.

It's a real struggle for survival in the forest, with the odds a 1,000-1 against winning.—Rosemary Clarke, *Department of Commerce, Radio Bureau*

Oak Orchard opening

The Oak Orchard Game Management Area is one of two controlled public shooting grounds for waterfowl operated by the Conservation Department.

Opening day, this year, was the best yet. There were 180 hunters checked in for the opening shoot and they bagged 428 ducks or an average of 2.4 birds for each hunter. By species, the take was: 258 mallards, 90 black ducks, 21 baldpate, 20 green-winged teal, 25 wood-duck and a single blue-winged teal.

The hunters didn't do so well on geese, only 17 in comparison to 58 for the first day last year. There is a reason; last year immature geese were forced out of the northern breeding grounds early by freezing weather. En-route they stopped over for feeding and resting and gave New York hunters some of the best goose shooting on record. Most of Canada had ideal late fall weather this year and the geese were in excellent shape to make their southern flight with only the usual, occasional stopovers.

It's interesting to note that 5,042 shells were required by the 180 hunters to account for the 428 ducks brought to bag. This averages out to about 28 shots for each hunter and about a dozen shells per duck. This varied from hunters who claimed three ducks for three shots to one pair that claimed 175 shots for one duck!

The crippling loss remained about average with 125 birds reported lost. Fortunately, hunters with retrievers accounted for wounded birds that would otherwise have been lost.

Waterfowl hunting is permitted at Oak Orchard on Tuesday, Thursday, and Saturday. The other days are designated rest days in an attempt not to over-gun the area and to spread hunting opportunity throughout the season. Thus far, the system has worked very satisfactorily.

Air pollution

According to the State Department of Health, the Elmira area of New York is a natural for air pollution in the future *unless* control precautions are taken.

Although there is no serious air pollution condition affecting that metropolitan area now, the significance and seriousness of air contamination in Greater Elmira will increase with the expansion of industry, accelerated growth of population, greater use of motor vehicles and accompanying social and economic developments. There has been a 17.7 per cent increase in the population of the area in the last 10 years.

Greater Elmira's basin-like topography, low wind speeds, numerous fogs and temperature inversions indicate that the atmosphere over this portion of New York State will be unable to cleanse itself of contaminating material if sources and amounts continue to increase.

According to a recent report 40 per cent of the 40,000 tons of solid and gaseous air contaminants emitted in the area each year are from industrial sources. Private sources contribute 33 per cent, with 16 per cent from public sources and 11 per cent from other commercial operations.

In the five towns, three villages and one city covered by the report, local legislation and control activities are inadequate or totally lacking. However, municipal zoning, fire control, refuse disposal and general ordinances do contain provisions for better air quality, but are largely unenforced.

Air pollution control facilities including technical services, sampling equipment and laboratory installations cannot be supported individually by the local communities. This, plus the intercommunity nature of some pollution, suggests a need for intercommunity control. Rules and regulations based on findings and recommendations of the survey now are being written and will be submitted for discussion at a public meeting before adoption.

Dr. Frederick C. Lincoln

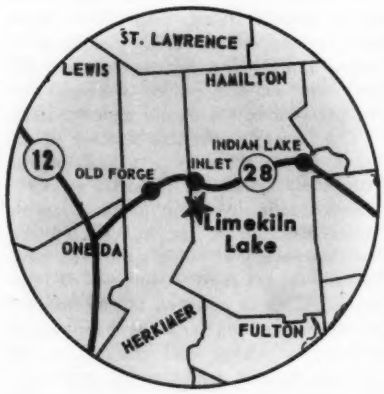
Dr. Frederick C. Lincoln, internationally renowned ornithologist died in Washington on September 16, bringing to a close a lifetime interest in the study of birds.

Among his many works for state and federal government agencies, Dr. Lincoln organized and directed the first government-sponsored bird banding project in America. The results of that work enabled him, in the early 1930's, to define a pattern of four major flyways used by waterfowl during migrational movements. Since 1948, the migratory bird hunting regulations have been based on the flyway concept developed by Dr. Lincoln.

A prolific writer on ornithological and conservation subjects, Dr. Lincoln was author of some 300 scientific papers and popular articles. His writings have appeared in publications ranging from technical journals, scientific circulars and leaflets, handbooks, magazines to encyclopedias. "The Migration of American Birds," published in 1939, was one of his better known books and his latest work was with Dr. Ira N. Gabrielson in producing "Birds of Alaska," in 1959.

Speed of flight

A snow goose, chased by an airplane, was clocked at 50 miles per hour; a mallard was able to maintain a speed of 65 m.p.h. for 10 miles, but most amazing of all was the speed of 265 m.p.h. reached by a frigate bird, a long-winged sea bird.



Limekiln Lake

A valuable addition to the Adirondack Forest Preserve has been made with the State's purchase of 435-acre Limekiln Lake along with 15,000 acres of adjoining forest lands.

The lake is located right on the Hamilton-Herkimer counties line, just to the south of the Village of Inlet and the Fulton Chain of Lakes. Plans are in the making to develop a part of the north shore of the lake as a public campsite in line with the Department's program for expansion of these popular facilities.

Limekiln is already recognized as a good fishing lake and the prospects look good for even further improvement now that the lake is in State ownership. The forest lands around the lake support good deer and bear hunting.

SOME ANIMALS OF NEW YORK

(Continued from page 27)

Their place in the scheme of things seems to be as a predator and scavenger. They are thought to keep the mouse population down and certainly mouse hunting seems to be their main occupation and pastime.

Red fox fur was once very popular, single good pelts bringing $20 or more. At present, their pelts are worth very little.

Some people think fox hunting with hounds is the greatest. Some hunt them by tracking in the snow.

Their numbers fluctuate from time to time. At times, there are lots of foxes in a locality and at other times almost none. There are several diseases that are fatal to foxes, rabies among them, and these take their toll when the population becomes too heavy in a locality.

The Cottontail Rabbit

The cottontail rabbit can chalk up several "firsts" among game species in New York State. It is first in providing hunting opportunity, first in numbers harvested, first in preference to one-quarter of the State's licensees and, accounting for most of the above, first in its ability to reproduce its kind.

The dynamics of a rabbit population are truly remarkable. Although famed for its reproductive capacities, few realize the cottontail's full potential in that department. Hunters in New York take, conservatively, between 1½ and 2½ million rabbits a year. Since fall-winter populations consist of three young to each adult, the breeding season minimum population of adults averages well over 500,000, half males and half females. If all the 20 to 25 young, which is the normal average production per female, were to survive, the first year population would exceed 5 million. Again, assuming no losses, the second fall production would exceed 50 million. Although such numbers might sound like utopia to ardent rabbit hunters and beaglers (not to mention the beagles) their probable effects on farming and on the appearance of the landscape, including ornamental plantings around households, are too frightening to consider—so we'll go no further with this picture; you get the idea, we're sure.

It's obvious, of course, that this sort of thing doesn't happen. It doesn't happen because weather, predation, the activities of man and parasites and diseases take their toll. Only about a third of the young live more than a few weeks and of those that live to grow up, only a small fraction (about 5 per cent, it's reported) live to be two years old. The oldest known wild rabbit in the U. S., checked by ear tagging, was five years old.

In order to escape their many predators, rabbits have to be gifted with keen eyes and ears and be fleet of foot. They are!

Their eyes are on the sides of the head where all activity ahead, above and behind can be seen without moving the head. The ears form large cups which can be aimed at any sound. The long hind legs insure remarkable take-off speed and maneuverability which, given a little cover to operate in, is good enough to elude almost any pursuer.

Mother rabbit is one of nature's masters at camouflage. She digs a hole about 7 inches by 5 inches by 5 inches in which to shelter her young for the two-week nursing period. The sizeable mound of freshly-dug earth, the young and the hair which she has plucked from her belly to line the nest are then covered with a layer of grass and debris in a manner which defies detection. This feat of camouflage is repeated thereafter twice daily, after nursing and cleaning the young. I have watched this operation which, using teeth and feet to arrange, rearrange and arrange again, sometimes takes as long as a half hour.

Except during the nestling state and for brief periods during the mating season, cottontails are solitary creatures. Although sometimes two or more use the same brushpile or burrow, they are together to escape the elements or predators and not for companionship. As a matter of fact, too close confinement, such as in pens, often winds up with a single survivor, usually the larger female. Although rabbits' best defense is usually flight instead of fight, under such circumstances among themselves they can be vicious battlers.

As sport for hunters or field trial beaglers, "br'er" rabbit rates with the best. And we shouldn't overlook the fact that after being brought to bag he makes a tasty dish, not unlike chicken in flavor.

THIS CHRISTMAS TREE BUSINESS

(Continued from page 31)

has established a series of Christmas tree grades which if used, enable buyer and seller to come to terms on a common basis. The use of these grades, U. S. Premium, U. S. No. 1 and U. S. No. 2 is optional. However, the hand of competition is pressing toward their greater acceptance year by year. Inspectors from our New York State Department of Agriculture and Markets are available to grade trees for a nominal fee.

To sum up, William Serra, President of the New York Christmas Tree Growers' Association, recently said:

"The grower of the future will have to learn to fight and combat insect and disease problems. He will also have to produce quality trees by cultural practices and cultivation, as the many millions of trees being planted at the present time will produce a very keen competition in the future in the Christmas tree industry; and only by careful businesslike marketing practices and the development of trees of fine quality can the individual grower expect to be able to stand the competition which is obviously appearing on the horizon."

We would add to this that the grower of Christmas trees, despite the difficulties involved, will also experience a deep sense of satisfaction and well-being in knowing that he is producing a thing of beauty that has never failed to light the eyes of children everywhere. Is there a greater joy?

Conservation magazines

The American Association for Conservation Information has come up with some interesting information on conservation magazines published by state governments.

In 1959, 44 states were publishing 45 magazines with a combined circulation of some 1,400,000. This averages 31,767, ranging from a low of 5,000 to a high of 134,000.

Magazines were distributed by 20 states free and by 24 states for a fee of 50¢ to $2. The per cent of state population receiving conservation magazines ranged from 0.7 of 1 per cent to 3.3 per cent. Staff members concerned with publication ranged from one to eight with an average between three and four. Cost per copy averaged 11.5¢ with a range from 2¢ to 27¢.

Readership has been estimated at four times the circulation, which in the case of THE NEW YORK STATE CONSERVATIONIST (circulation 70,000) would be 280,000 readers.

Lumber use

Lumber use in the nation totaled just under 40½ billion board feet for 1959. Of this total, softwoods made up 33¼ billion board feet and hardwoods 7¼ billion. Per capita consumption was 224 board feet.

Story in the snow

Location: Lake Alice Game Management Area, Clinton County.

Time: Winter, 1959.

Cast of Characters: One muskrat, one red fox, one photographer.

Action: As the story opens, muskrat, a resident at the time of the Conservation Department's wildlife facility in that area, is taking the air, on stage—lower right, perhaps searching for something terrestrial to vary an aquatic diet, or otherwise acting in a preoccupied manner. Enter, from upper right, one red fox proceeding from "Place A" to "Place B" in a purposeful manner; perhaps off to visit a titian-haired beauty; perhaps on the way home to turn in after a hard night's hunt. Suddenly, (top center—right there by that dead weed) Reynard puts on the brakes. Did his sharp eyes spot a movement? Did his equally sharp nose catch a musky whiff of the unwary one? Whichever, you can almost see him peering intently through that partially screening weed; then—leap—leap—leap, a brief scuffle and where once there was a preoccupied muskrat there are now a few bits of fur, what appears to be the muskrat's liver, and in the foreground, two fox droppings, further evidence, if any is needed, of who dunnit.

Last to enter, the photographer, see snowshoe tracks upper left, to record this story in the snow.

Body booting

Man's ingenuity is always on the look out for an easier and better way of doing things and hunting and fishing are no exceptions. Waterfowl hunting has an interesting history of various ways and methods—shore blinds, off-shore blinds, floating blinds, pits, sink boxes, jump shooting, and pass shooting, as examples. But of all the lengths resorted to in efforts to outwit ducks, none is "lengthier" than *body booting!* In this operation, the "body" (hunter) inserts himself in a "boot" (rubber suit) from neck to toe, then goes out in the bay (Chesapeake Bay is a favorite) where he stands, gun at the ready, immersed up to his neck. Nearby, in a hollow, tethered swan decoy, is his ammunition. In this situation, it's handy to know something about the tides. Other than that, there's no premium on knowing anything.

Seeding for ducks

Aerial seeding for wildlife management is used by Wisconsin on several waterfowl flowages to improve fall food supplies on these areas.

A Cessna 180 airplane is used with a tube arrangement placed in the floor of the cockpit so that seed can be poured out. Seeding is done at about 100 feet elevation.

The seed is spread on the exposed mud flats of the flowages after the water levels had been lowered. Japanese millet is used but others might be substituted or added. The areas can be reflooded and should aid in providing increased duck use.

Duck stamp sales

Duck stamp sales for the 1959-60 hunting season totaled 1,628,365, according to the Department of the Interior. This is 537,197 below the sales of the previous year when 2,165,562 stamps were sold, and lowest since the 1944-1945 season when 1,487,029 stamps were distributed to hunters, conservationists and philatelists. The record year was 1955-1956 with sales at the all-time high of 2,369,940.

The drop in sales was not unexpected because the price of the duck stamp rose from $2 to $3 and on the basis of past experience, it was known this would cause some individuals to discontinue purchase. Unfortunately, there was an additional factor of unfavorable conditions on the breeding grounds which resulted in forecasts of poorer flights and poorer hunting last fall. As a result, a considerable number of people—not sufficiently dyed-in-the-wool duck hunters who go regardless—decided to pass up duck gunning and did not buy stamps. This reduced the number of duck stamps sold but it also had its beneficial aspects—the ducks benefited from the reduction of gun pressure.

The sale of duck stamps is the best available index of the number and distribution of waterfowl hunters throughout the county. The Atlantic Flyway accounted for 233,246, down 92,571 from the year before. New York's total was 52,390.

National forest timber

Under more intensive multiple use management, timber cut on the National Forests jumped a billion board feet during fiscal year 1960, bringing the total harvest to a new high.

Field offices of United States Forest Service reported a cut of 9⅓ billion board feet of timber with a value of almost $148 million. This compares with a cut of 8⅓ billion board feet in fiscal year 1959 with a value of $114 million. The 1960 harvest cut from the National Forests represents 14 per cent of the total sawtimber harvested for the nation.

The Forest Service also sold more timber in fiscal year 1960, reporting an increase of 30 per cent over 1959. This will be reflected in future harvests. Most of the increase is attributed to a long-term sale of 3 billion board feet of pulpwood in the Southwest.

This sale, the largest ever made outside Alaska, will mean an important new industry for that region. It will supply a new paper mill, producing a daily capacity of 150 tons of kraft paper and 210 tons of newsprint. The timber will come from Arizona and New Mexico.

The wilds of Westchester

About the time Manhattan Island was being sold to the white man for a few dollars' worth of cloth and trinkets, Westchester County was a dense wilderness. Historical records indicate that buffalo were common in the Croton and Titicus River valleys. Beaver were plentiful and bear and wolves roamed the countryside. Deer were very abundant and they constituted an important source of meat for food and hides for clothing and implements. The trapper found excellent supplies of furs—fox, otter, mink, muskrat, raccoon and the much sought after beaver.

Times have changed and Manhattan's worth is now calculated by the square foot. Just one area can bring a price many times that paid initially for the whole island. Westchester County's game trails have turned into parkways and its beaver ponds into great reservoirs and, there are people by the thousands—everywhere.

Hardly a place for wild game one would think, but surprisingly enough, the majority of the species originally found are still there. The buffalo is gone, of course, as is the wolf (at least the four-legged ones). For a time the deer and the beaver could not put up with man's activity and left for quite a period. They are back though, in such numbers that Westchester County has supported a harvestable population for many years. Deer have long been legal game for the archer and last year it was necessary to have a restricted gunning season to bring the wild herd within limits that could be supported by natural wild foods without dependence on the valuable shrubbery of many a home site or domestic farm crops. Conservation Department workers are often called upon to dig out beaver dams and trap the animals whose activity now conflicts with man's ideas of suburban living.

In the picture, Game Protector Ed. Kurka surveys a modern beaver residential development in Westchester County.

Farm pond survey

More than 20 million man-days of recreational fishing were provided in 1959 to at least 5 million persons as a result of farm pond fishing, according to reports from the U.S. Fish and Wildlife Service.

A recent survey conducted by F. & W. S. indicates that one-fourth of all persons fishing in fresh-water in 1959 fished at least once in a pond that had been stocked by the Bureau of Sport Fisheries and Wildlife. Between 30,000 and 40,000 ponds are stocked annually with fish produced at federally-operated fish hatcheries. Largemouth bass and bluegill sunfish were the primary species used in the stocking program.

The farm ponds provide a great deal of family-type recreational fishing with 23 per cent of the pond anglers women and 25 per cent children 15 years old or under. Such factors as nearness to home and greater safety contributed to this high percentage.

The survey indicated that fishing success in farm ponds is unusually good. The average catch of largemouth bass from the ponds studied was 46 fish per acre in 1959. Since the bass were stocked as small fingerlings and at rates varying from 50 to 100 fish per acre, this average shows a very high return. The catch of bluegills and other sunfish averaged 228 fish per acre. Farm pond owners reported satisfactory to excellent fishing in 82 per cent of the ponds covered by the survey.

Most farm ponds are built with several different purposes in mind. However, the survey showed that recreation uses were among the dominant reasons for constructing ponds, with fishing rating very high. Purposes other than fishing included livestock water, irrigation, swimming and wildlife.

Going up

The National Park Service reports that interest in *state* park facilities is continuing to rise. During 1959, the total attendance reached 255,309,602, an increase of 7.6 per cent while tent and trailer camping increased 5 per cent to a figure of 13,733,510.

The number of areas have risen to 2,433, an increase of 4 per cent, while the total acreage reached 5,680,909, an increase of 5 per cent. Expenditures by state park agencies amounted to $88,268,419, an increase of 20 per cent, while the outlay for lands was $14,834,071, an increase of 96 per cent. New York (2,174,039), Michigan (2,026,857) and California (1,554,016) reported more than 1,000,000 camper-days.

Reservoirs

A report on the multiple use of drinking water supply reservoirs secured by questionnaire and published in the transactions (1959) of the American Fisheries Society reveals some interesting information.

Twenty-eight U.S. municipalities of over 10,000 population returned completed questionnaires. Of these, 21 municipalities allow recreational use of some kind on 72 reservoirs having a combined area of 132,379 acres. Fishing and boating are allowed to a certain degree by all 21 agencies, picnicking by 15, sailing by 7, camping and swimming by 2, hunting by 1, and skating by 1.

Permits are required for specific recreational use by half the municipalities allowing such uses. Permit fees range from 35¢ to $1.50 per day, $2 to $3 a month, and $3 to $5 a year. The maximum fee reported was $12.50 for a seasonal boating and fishing permit.

Regulations and enforcement of them vary. Half the agencies supply sanitary facilities, 81 per cent attempt to control trespass and 76 per cent have regulations pertaining to "litterbugging."

Forest practice doings

Camp Nooteeming, the summer site of the Dutchess County Council, Boy Scouts of America, boasts one of the most unusual outdoor chapels for Sunday worship anywhere in New York State. As the picture shows, it was constructed of peeled, red pine logs cut by the Scouts from their own 24 acres of red pine plantation. The structure rests on a footing of creosoted utility poles and railroad ties. Brushed-on creosote has been applied to the peeled red pine logs every other year as a maintenance feature ever since 1955, the year in which it was built.

Incidentally, this camp has been a Forest Practice Act co-operator since 1948 and under the auspices of this program has pruned and thinned all of their 24 acres of red pine plantation.—FRED W. OETTINGER, *Forester, Forest District #14*

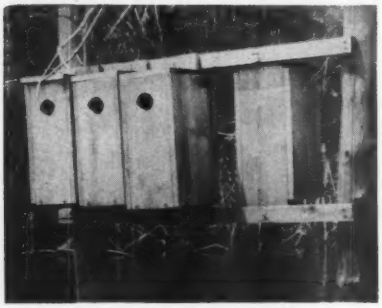
Cottontail hunting success

It takes 26.4 hours to bag a day's limit of 6 cottontails. That's equivalent to two and one-half hunting days at 10 hours each. At this rate, it's doubtful if many hunters collected many full daily bags.

Hunting booklets were sent to 421 known cottontail hunters in Albany, Columbia and Rensselaer counties just prior to the 1958-59 hunting season along with a letter asking the hunters to set down a few facts for each hunt. Only 244 or 58 per cent of these hunters responded, and of these, 107 reported they did not hunt and another 54 said they hunted but did not keep records. Some other reports were not useable but 72 booklets contained information suitable for analysis.

There were 808 hunts with 1,528 hunter-days reported along with 3,391 dog-hours. The total take for the 4½-month season was 1,314 rabbits and a crippling loss of 141. The hunters averaged less than one rabbit per day or a little more than 8 for the season.

With records such as this, it would seem that bag limits and length of season have little effect on the harvest of the year's production of this species.



Duplex for ducks

With all the present day emphasis on togetherness, Allegany Game District Biologists decided to see how the practice would go over in the duck world. The picture shows five of the artificial nesting boxes the Department has been erecting for woodducks over the past years. The only difference in this case is that the boxes are grouped together.

The boxes were erected on the Hanging Bog Game Management Area pond early in the spring of 1959. The woodies showed their enthusiasm for the project by using four of the five boxes that very spring! Checks made this spring (1960) showed that at least three of the five had been used again.

Only one other duplex has been erected elsewhere in the District so far. That one, consisting of two boxes, produced one brood in its first year of operation, 1960.

These results seem to indicate that community living is acceptable to the woodies. This practice will also prove useful to gamemen in the future erection of the nesting boxes, particularly where suitable supports are limited.—L. S. NELSON, *Conservation Biologist*

"Adirondack" Murray

This year, New Yorkers have been observing the 75th anniversary of our State Forest Preserve—2½ million acres of peaceful, quiet, woodland beauty—that's right in the heart of the most heavily populated, most heavily industrialized state in the Union.

Today, it's one of the most popular attractions that we have—this Forest Preserve with its campsites and hiking trails, lakes and streams and so many wild birds and animals that it's practically one big zoological park. Not just thousands, but millions of people every year visit New York's Forest Preserve.

And yet, believe it or not, there was a time, less than a century ago, when the average person thought you were a plain darned fool if you went anywhere near the Adirondacks. Then, along came "Adirondack" Murray and his one-man revolution.

Who was he? He was a minister, the Rev. William Henry Harrison Murray, born in Connecticut in the year 1840. He was one of the great preachers of his day. His friends and admirers included men like Longfellow, Emerson, Nathaniel Hawthorne and John Greenleaf Whittier. Eventually, he became known throughout the entire world.

But today, the Rev. Mr. Murray is remembered, not so much for his oratorical power and skill, as for the books he wrote about the Adirondacks. He first went there on a vacation in 1864. when he was a young man in his early 20's. Year after year, he kept going back. There was something about the wilderness that captivated this big, handsome man. He thought other people would feel the same attraction for it, if they only knew about this paradise at their doorsteps. So, he began to write.

His first book came out in 1869 and was called "Adventures in the Wilderness." In it he spoke of the incredible beauty of the Adirondacks, the fun of hunting, fishing and camping underneath the pines and the healthfulness of outdoor life in the North Woods. He said, in effect, that it was just the place for tense, tired, overworked businessmen to get away from it all.

Murray's favorite camping spot was a little island in Raquette Lake. And in the book, he says, "Not until you reach the Raquette do you get a glimpse of the magnificent scenery which makes this a wilderness to rival Switzerland."

Well, almost overnight, "Adventures in the Wilderness" became a best seller. Then, there was a regular storm of controversy. Some of the folks who read it thought the good minister must have gone out of his mind. Newspaper editors called it a "monstrous hoax" and cartoonists outdid themselves in making fun of the book. But thousands of people believed what Mr. Murray had to say. And the following summer they descended on the Adirondacks in droves. The "Murray Rush" it was called. Those who joined it were known, in some quarters, as "Murray's Fools."

But of course, it wasn't long before the Adirondacks became universally popular. The next thing you know, everybody was writing books about the North Woods. And everybody was going there. So one guesses nobody was really surprised when, in 1885, part of the Adirondacks was set aside to form the nucleus of the New York State Forest Preserve. That way, it would belong to *all* the people of the State, for all time to come.

Meanwhile, what about "Adirondack" Murray, as the good minister came to be known? Well, he went on writing about sports, travel and outdoor life. Many of his books were about the Adirondacks, still his favorite spot, even after he had traveled around the world.

In Bavaria

Bavarian hunting customs and regulations, as described by Bruce Kilgore writing in *Oklahoma Wildlife*, offer some striking contrasts to ours. Minimum age to qualify for a hunting license is 18 and the young German hunter must successfully complete a six months course on hunting laws, customs, study and identification of game and non-game species, and some fundamentals of game management. Completing this, the new hunter is examined by a board of qualified German jaegers (hunters). If he passes his examination, the young hunter is entitled to purchase his license—50 marks ($12)—but cannot go afield until he has also purchased hunting insurance ($35.000 personal liability; $3,500 property liability).

Now, finally, is the hunter on his own? No, first he must secure permission to hunt on the land, hire a guide and look to the guide for an O.K. to shoot the game seen.

In comparison, we're still living and hunting like pioneers.

Explorer Post No. 22

Although some forest fires are so-called one-man fires, a great many of them require a considerable amount of help to bring them under control and to mop them up.

Finding sufficient help to do this has always been a problem, especially in the northern areas of the State, where many townships are sparsely populated and where many of their residents find employment elsewhere.

Adequate help can usually be found during the initial stages of a fire. It is on the large, prolonged fires that the shortage of help becomes apparent. Mop up and patrol operations requiring crews around the clock for days or weeks are needed and are often difficult to find.

Normally, help is recruited from our regular Fire Warden force, with each Warden providing three or four men under his supervision. Help is provided on many fires by the local volunteer firemen's organizations. Arrangements have been made with the larger companies in the area for use of their labor and equipment in the event of a large fire. Personnel from other Bureaus of the Conservation Department are also available and used when needed. In spite of this build up of manpower, a shortage of help sometimes exists.

Occasionally, a *volunteer* group offers its services and is worthy of special recognition. One such group is the Gouverneur Explorer Post No. 22, Boy Scouts of America. This Post consists of 30 boys, ranging in age from 16 to 19 years, who under the supervision of Charles Jones have been used on several forest fires in the District.

These boys, with their leaders, are specialists in emergency service. With their regular mobilization plan, the unit is able to muster its membership within thirty minutes for duty as the occasion may require. Each Explorer Scout brings his pre-packed gear to enable the group to be self-sufficient in the field for the first 24 hours.

This group has received instruction on forest fire behavior and techniques from Ranger Charles Johnson of Hermon. They have had instruction in marksmanship, hunter-safety and wildlife conservation from Game Protector Harold Lienemann of Gouverneur.

The group is active in other related work including assisting in searches for lost persons, civil defense drills and numerous conservation activities. It has engaged in local tree planting projects with the Gouverneur Rod and Gun Club and has participated in fish planting projects in the area.

This Post rendered prompt service on one forest fire this summer in the Town of Edwards, St. Lawrence County, where the Post was used for several days with its supervisors, under the direction of Ranger Johnson.

It is a group of boys who are doing much to benefit the community, and one of which their parents and leaders can be justly proud.—R. E. KERR, *District Forest Ranger, Canton*

Fourteen points

U. S. Forest Service fishery management biologist, A.F.C. Greene, has come up with 14 points for road builders to help save streams as they build the needed arteries for commerce and travel:

1. Place fill or waste material in such a way as to keep it out of streams even at flood stage.
2. End-haul fill material to better waste areas or provide structures capable of holding it in place.
3. Make detailed plans for proper drainage and necessary drainage structures.
4. Plan culvert installations carefully so outlet ends do not hang over a fill. Culverts should always be at the toe of a slope and should spill onto stable material.
5. Headwall the ends of culverts when inlet faces into a bank and rip-rap the bank at that point.
6. Upper ends of culverts should always be higher than the lower end so that any sediment collections can be carried through.
7. Use culverts at the level of the stream during low flows so passage of migratory fish is assured.
8. Construct sediment settling basins to remove silt from water before it reaches a stream.
9. Use correct angles of repose for fills and cutbanks in relation to the soils concerned and plant all scarred areas for resodding.
10. Consider the use of fills over stream channels as dams which can impound fishing waters. Other agencies may be able to assist with costs of rip-rapping and outlet structures.
11. Keep a good crown and clean drainage ditches on all roads.
12. Clean all stream channels above culverts of logs and driftwood for 100 feet to prevent clogging and road washouts.
13. Keep roadways as far as possible from creek channels.
14. Change stream channels only when absolutely necessary.

Glacier Peak

Glacier Peak Wilderness Area, consisting of 458,505 acres in the State of Washington, has just been established. The decision was made after a Forest Service study which indicated that wilderness was the predominant public value in this area.

Establishment of the Glacier Peak Wilderness Area increases the total area of National Forest land set aside in the nation for wilderness use to 14,660,234 acres.

Pheasant life

The life expectancy of a pheasant is less than a year. Those reaching two or three years are in the same category with 100-year-old humans.

Sea monster

A recent news release from New Zealand reports that a professor at Victoria University (New Zealand) has captured an immature larval eel 3 feet long; possibly the baby of a 30-foot adult. A Denmark professor has reported on migration of eels in which he described a larval eel 6 feet long—one of several specimens he had taken. This would indicate parent eels of huge size. The great eels, 30 to 50 feet long, hooping their way across the ocean waves might account for some of the sea serpent legends. The newly-caught young eel now under study by the zoology department at Victoria, has a reptilian head, large, sharp teeth and well developed eyes and resembles apparently the "star" of some Hollywood horror film.

Arrowheads

Before the white man came the Indians were Stone Age people with weapons and implements made of stone, bone, shells and wood. In obtaining the desired materials—such as by quarrying stone—the red men were amazingly industrious; in fashioning them, they were amazingly ingenious, skillful and patient. The arrowhead was a notable example. In the Dakota (Sioux) language it was called "wan' hi," meaning "tooth of the arrow," and it really was a sharp stone fang which would wound and kill at a considerable distance. The Indian's chief weapon was the bow and arrow.

An arrow maker, always a man, was a highly respected craftsman. Each arrow must be perfectly straight, rigid, expertly feathered, with a suitable point or head cleverly attached. The making of a sharp symmetrical arrowhead from a rough "blank" of stone was an art. The handiwork was tedious and delicate. In some tribes this finishing—by chipping and flaking—was done by old fellows who had had their days as hunters and warriors.

Arrowheads were made mostly from rocks having a glassy or a fine-grained structure because, from them, flakes shaped like one-half of a little clam shell could be chipped or pressed off easily. The Indians searched far, and did a lot of trading with other tribes, to get good stone. Obsidian or volcanic glass was best of all but obtainable only in such places as the Yellowstone Park region. The plains tribes traveled hundreds of miles to get this "black ice." Next best were the fine-grained silicates such as hornstone, chalcedony, agate, jasper and, especially, flint. This dark grey or black rock was found in southern Illinois, Indiana and the Ozarks but the principal quarry was in Ohio, about 40 miles east of Columbus, and this was a "peace grounds" which all tribes could visit.

Arrowheads were usually made at or near the village site, rather than at the quarry, after the chunks of rock had been buried for quite a while in moist earth to "temper" them—make them work more easily. Each chunk was reduced in size and shape into one or more rough blanks by hammering it with another stone and by using a chisel made of stone, bone or an antler. This required skill as each blow had to be of the proper force and in the proper direction.

In shaping a blank it was placed on the palm of one hand, which was protected by a piece of leather, near the base of the thumb and firmly held there by the four fingers. The other hand held the flaking tool in a prong from a deer's antler or a sharpened bone. By applying spasmodic pressure on the bottom side of the blank, flakes were removed until that side was bevelled. Then it was turned over and bevelled on the other side. The final sharpening was accomplished by applying lighter "rolling" pressures at the edges of the arrowhead to remove tiny flakes or by using crude pincers of bone.—NATURE BULLETIN, *Forest Preserve District, Cook County, Ill.*

Elm hazards

The "weed tree" of yesteryear is becoming the crop tree of this year.

Demand for hardwood pulp has reached the point where one mill in Cornwall, Canada is taking elm. This species, never thought of in early days as a commercial forest tree, now enjoys ready marketability. Many northern farmers are reaping a financial harvest from trees formerly of ornamental value only.

Elm is also finding a market abroad and with the opening of the St. Lawrence Seaway, there is a call for high grade elm veneer logs for shipment to Europe.

Perhaps this graceful ornamental species has more to fear than the Dutch elm disease.

About deer

Fawn deer are born in June or early July about seven months after the mating season. They lose their spots when they are two or three months old. Deer change the color of their coats from a reddish cast during the summer to a slate grey shade in the fall and winter.

New antler development in buck deer begins within ten days after the old antlers have been dropped and they shed their antlers shortly after the breeding season. The process may be of short or long duration, with the healthiest bucks shedding their antlers first.

Diamond anniversary

The "diamond anniversary" of the federal government's entrance into the field of wildlife research is being celebrated this year. The U.S. Fish and Wildlife Service has made significant wildlife achievements during the past 75 years. Wildlife workers of today are indebted to the pioneers who started in 1885 to find out all they could about the various species of wildlife. The findings of those early naturalists fill many volumes and form a solid foundation for many of today's wildlife management principles.

The importance of wildlife in the national economy and its value as a recreational resource is well recognized. The task of meeting the ever increasing demands made on wildlife resources is a continuing one and to provide for them properly in the future is a challenge worthy of the dedicated concern and support of every American.

Fulton salmon

On October 19, (1960), Mrs. Harwood of Eagle Bay noticed her two dogs tearing apart a very large fish. Later in the day, she mentioned the fact to me and we located the remains of a large salmon. It probably weighed about 10 pounds. Exact weight could not be obtained from the chewed up remains.

The question arises as to where the dogs picked up the fish. Mrs. Harwood's house is near Eagle Creek and the salmon may well have moved up the stream from Fourth Lake to spawn or possibly the dogs found it dead along the lake shore or some other location. We know there are some large salmon in the Fulton Chain, but to date, haven't seen any as large as this "dog salmon."

If any readers have further information on this salmon, or any other salmon in the Fulton Chain area, we would greatly appreciate hearing from them. —W. A. PEARCE, *N.Y.S. Conservation Dept., Box 84, Watertown*

Temperature control

Whiskeytown Dam in California will include a second outlet to provide temperature control for salmon and steelhead trout.

The multiple outlet will permit the warmest water from the reservoir to be drawn off during the period January through August, while the cold water would be retained for release during the fall spawning season from September to December when stream temperatures might otherwise be too warm for optimum spawning conditions.

The turkrabduck

Ever since the New York State Conservation Department came up with a new species of fish—the splake, a cross between the speckled and the lake trout—I figured they'd be cooking up a new kind of game animal next. Now, I'm convinced of it.

Researchers at the Department's Wildlife Laboratory in Delmar are requesting that successful sportsmen send in (1) wild turkey legs, (2) rabbit bones and (3) duck wings. As I understand it, the information they'll obtain thereby will be invaluable to New York's wildlife management program.

But here's the thing. After they get the data they need, what's to stop the game biologists from piecing together this odd assortment of feathers, bones and limbs and presto, creating a new genus? They might call it the *turkrabduck* (accent on the second syllable).

Being part cottontail, the animal would probably wriggle its nose at the first whiff of carrots, clover and hound dogs. But its choice of habitat would have to be a compromise. Otherwise, its life would be one long, relentless merry-go-round, its duck wings taking it to every swamp in sight, where its turkey legs would promptly start a retreat to the nearest open woodland.

Would it gobble or quack? Probably neither. You'll notice that the researchers didn't ask for any vocal chords. Just as well, too. There's enough noise in the world without having any loudmouthed turkrabducks around.—ROSEMARY CLARKE, *Radio Bureau, N.Y.S. Dept. Commerce.*

Fisher

The fisher, which belongs to the same family as the mink and the marten, is able to fight off and kill such animals as the fox, bobcat and lynx.

Notes on seals

Larger harems than any other mammal in the world are claimed for the northern fur seal. A bull fur seal has an average of forty to sixty mates and may have as many as a hundred. The male seal is about six feet in length and weighs up to 700 pounds. The females are much smaller.

The Pribilof Islands in the Bering Sea are the only places where the northern fur seals come to land and it is here they breed and rear their young.

Since the teeth of the fur seal are not fitted for chewing, the animals must bolt their food whole and alive. An unusual item found in their diet is stones! Seals have been found with rocks as large as hens' eggs and weighing as much as three pounds in their stomachs.

One of their greatest enemies, other than man, is the killer whale who may swallow as many as twenty-four seals, whole and struggling, for one meal.

Mobile machine

A cow is a mobile, animated machine housed in unprocessed leather. One end is equipped with a mower, grinder, bumper, headlights, wingflaps and foghorn. At the other end is a milk dispenser and a movable insect repellent. Centrally located is a conversion plant of a combination storage and fermentation vat, three converters in series, an intricate arrangement of conveyor tubes, a central heating plant, pumping system and air conditioner. Although mysterious and secret, this plant is unpatented. It is available in various sizes, colors and output ranging from one to 20 tons of milk a year.—KENTUCKY EXTENSION SERVICE

Oxygen

When swimming under ice, mink, beaver and muskrats often breathe from air bubbles that are trapped just below the ice surface.

Tree farms

More than 18,000 certified Tree Farms with over 54 million managed acres are adding millions of gallons daily to the nation's domestic and industrial waters. The forested floor soaks up water like a sponge and makes possible a clean, slow runoff into streams and reservoirs, resulting in greater water stores, better fishing and more abundant wildlife.

The Tree Farm program, started by the forest industries just 19 years ago, is now adding managed forest land at the rate of around 3 million acres a year.

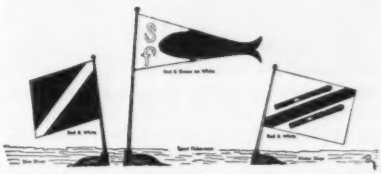
Conservation setback

The decision by Congress not to extend the Conservation Reserve Soil Bank program beyond the current expiration date of December 31, 1960 was a real blow to conservation. The Conservation Reserve thus comes to a halt with a total of 29,000,000 acres in retirement which will return to production as their contracts expire unless the program is resurrected.

The Conservation Reserve, which created much wildlife habitat, should have encompassed 60 million acres to be an effective force in controlling overproduction.

Mink

The vocal sounds of the mink include a low growl, a deep, savage snarl and a shrill squeak.

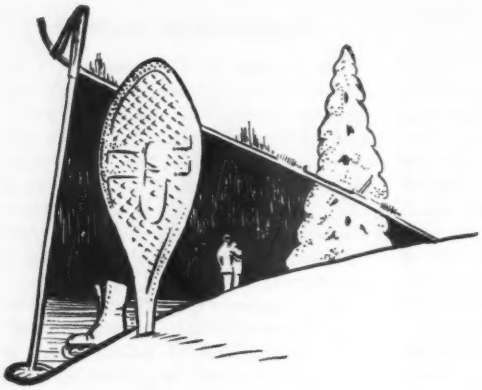


Safety flags

A pressing problem in water sports is the conflict of interest between participants in sport fishing and water skiing and its associated high-speed boating. Anglers fishing from boats are estimated to outnumber water skiers as much as 5 to 1. Water skiers, though, may require up to 50 times as much area for their activities as does an angler.

Skin diving has had its problems, too, and was first to come up with what seems to be a helpful device in the form of a distinctive flag to mark the presence of skin divers. The flag warns other boats to keep away. A new flag, too, has been designed to be flown from boats towing water skiers.

The long suffering sport fisherman seems to be the forgotten man. What might prove to be most helpful in this line, if anything, would be a distinctive new pennant somewhat like the one illustrated. It was designed by the Sport Fishing Institute for possible use by boating anglers. Its object would be to signify that the boat from which it is flying is engaged in sport fishing and that other craft should stay clear and not approach closer than 100 yards at high speeds. Its strict observance by other water users would serve to dissuade irate anglers from seeking restrictive legislation to guarantee their traditional rights as fishermen.



Letters to the Editor

Courtesy

Gentlemen: This past summer my family and I camped on the islands in the narrows at Lake George.

When I arrived at the Ranger Station on Glen Island, my wife and I were concerned as this was to be our first camping experience. Our children are 13, 9 and 6.

The Ranger, a Frank Leonbruno, allayed our fears, made several suggestions as to which of the available campsites we should take based on what he thought our requirements were. We were delighted with his first suggestion.

I imagine, because of our apparent greenness, he made a point of keeping an eye on us. He always pulled in close to our dock and waved every time he passed.

He was available when we needed a speedy trip to the doctor, and he patiently answered my children's many questions dealing with every topic imaginable. He always seemed to devote all the time necessary to talk to us. I noticed that he treated all the campers in this manner.

I have never written a letter of this nature. I have been very quick, in the past, to complain about bad treatment.

I wish to commend you for the competent, efficient and devoted employees in your Department, as evidenced by my relationship and contact with Ranger Leonbruno.

Harold G. Tucker, Bayonne, N. J.

• *We want you to know that we are appreciative of the time and trouble you have taken to write such a splendid letter of commendation. It is heartening, indeed, to know from one in your position, who meets and works with the public, that our men on these recreational areas are handling their jobs to the satisfaction of the public and are putting forth efforts beyond the minimum duty requirements.*

Your letter, incidentally, helps to confirm our impression of the excellent, conscientious and able supervision at the Lake George islands. We are only too glad to forward a copy of your letter to the people involved in the operation of our recreational program in the Adirondacks. I know it will be an inspiration to all of them to learn that their efforts have this sort of recognition.—E. W. Littlefield, Assistant Commissioner for Lands and Forests

Welcome change

Dear Sir: I want to give thanks to our Conservation Department. Out here in the Schoharie Valley your Department's good results I see every day. I have quail and pheasants in the hedgerows, a few feet from my house, and deer all along the hill, between Middleburg and Schoharie. Hounds bark, trailing rabbits every day and many grey squirrels and raccoons frequent the corn fields along close to the hill. Our trout were caught out early; good fishing while it lasted. Schoharie River was good bass fishing and still is this year. I think we have just as good fishing "river," "lakes" and "reservoir" as the Adirondacks, also hunting and trapping.

Sydney A. Daniels, Middleburg

• *We appreciate your taking the time to write, reviewing the wealth of fish and game which you are so fortunate in having in the Schoharie Valley and complimenting the Department for its conservation efforts in the area.*

We are encouraged that many of our fish and wildlife management programs appear to be helping the cause, but we do not want to give anyone the impression that we are not grateful to Mother Nature for her bounty —without which we would not get to first base.—Editor

Woodhull Mt. fire tower

Dear Sir: We hike to many of the fire lookout towers in the Adirondacks in the Old Forge-Indian Lake area. We have inquired recently about hiking to the Woodhull Mountain lookout tower and were told that there is no public access trail to this tower.

The public is welcome to all other lookout towers in the area. I would like to know why this particular tower is "off limits?"

Otto Meier, Utica

• *The Woodhull Mountain fire observation tower most certainly welcomes the public to visit this post. However, I will admit it is a long hike.*

The reason that there is a gate on the fire truck trail leading to the trail to the Mountain is that, under the State Constitution, we are only permitted to operate these trails for official business in connection with forest fire protection. Therefore, they are not open to the general public for travel by motor vehicle.

During the hunting season, a great many hunters use this trail on foot and numerous hiking parties use it during the summer. However, we cannot, as I have indicated previously, open it to general vehicular traffic.—A. J. Woodford, District Forester

Conifers vs hardwoods

Dear Sirs: Would you please advise me concerning the best timber trees to plant? I want to put 50 acres in hardwoods and 50 acres in softwoods. Timber in 50 to 100 years is my only object.

Would you also give me an address where I can purchase the seedlings for the trees you recommend?

Clyde A. McEwan, Brocton

• *Extensive planting of hardwood by this Department on an experimental basis during the past thirty years has led us to our present position of discouraging landowners who wish to plant them. In fact, our nurseries grow nothing but softwoods for reforestation purposes, with the exception of a few hundred thousand black locust which are planted by farmers for posts—and not too successfully at that.*

May I suggest that before you do any planting, you contact the District Forester of the area in which your land is located. He will arrange for a forester to go over the land with you and make recommendations as to species and spacing to fit your objectives. He will also tell you how to obtain trees from our State nurseries or commercial sources and he will advise you as to methods of planting, the availability of contract planters and other matters relevant to your project. These services are provided to all landowners of the State, free of charge, in the interest of promoting good forestry practices in as much of our 12 million acres of private forest land and the successful reforestation of several million additional acres of idle and abandoned farm land.

May I commend you for taking the time to seek professional advice before embarking on such a worthwhile project.—E. H. Huber, Supervising Forester

Batty

Dear Sir: Last week, I was fishing one of the trout streams in Delaware County and at about noon, I arrived at a pool below a dam which was about three feet high and some water flowing over it. As I came to the pool, I became conscious of something flying over me, up and down the stream. It was a bat with wingspread of 8" or 9" and as I watched, it lit on the lip of the dam, took a drink and with folded wings it jumped into the pool below, a distance, as I said, of about three feet.

The bat immediately began to swim toward the shore across the pool, a distance of about 20 feet while I watched, expecting a fish to grab it. It seemed to swim by the use of its wings below the surface, climbed out on a vertical surface of rock and hung there. First, I never thought bats flew in full daylight. Second, I never knew they swam.

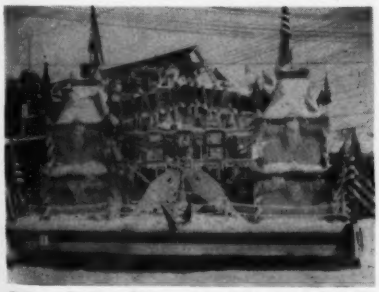
Can you tell me if this is common practice? I have asked a number of people, one of whom suggested the bat was infected with rabies.

Thanking you in advance for any information you have on this subject.

Clarence N. Durrie, Elizabeth, N. J.

• *All animals can swim in emergencies. Even the heaviest human has a lower specific gravity than water and bats, with their lighter framework, have an even lower specific gravity. Hence, I am not surprised that the bat you saw was able to swim. I think he was extremely lucky that no fish or other predator was able to seize him while he was out of his proper element. I can locate no records of swimming bats in the literature and can only assume that his landing in the water was accidental.*

As to your second question on bats flying in the daytime, this is not their usual pattern, but often bats are disturbed in their resting places and are therefor seen flying in the daytime, without their necessarily being sick.—E. M. Reilly, Jr., Curator, Zoology, N. Y. State Museum and Science Service



Prize winning float, entered by Paul Smith's Electric Light and Power Co. at Saranac Lake Ice Carnival, 1909

Ice carnival

Dear Editor: I thought you might be interested in the enclosed pictures of the Ice Carnival at Saranac Lake in 1909. Pictures were taken by one of the Christy men who owned Sabattis Park in the Adirondacks.

Mrs. Lorine W. Christy, Crawford, N. J.

Limbs akimbo

Dear Editor: I noted with interest the letter in the August-September issue of THE CONSERVATIONIST from Chester K. Arthur of Remsen concerning the natural graft from one tree to another. I am enclosing a photo of one at my place here at Genoa. This graft joins two honey locust trees about fifteen feet from the ground. A characteristic of this tree is that some limbs slant downward at an angle from the tree, while others slant upward. My theory is that a down-slanting limb grew across an up-slanting one and as they grew larger they rubbed together, wearing away the bark and causing the wood to perfect a natural graft. This limb is in the shape of a human arm bent at the elbow and is about seven inches through at the bottom and about three inches through at the smallest part. It appears to be perfectly healthy and is completely covered with healthy bark.

John B. Mastin, Genoa

Outsize leaf

Dear Sir: Last night, while walking among the autumn leaves in our yard, I was amazed to see at my feet a maple leaf much larger than any I have ever seen. I have no idea what the record size may be. Between the two points of the upper lateral lobes this leaf measures just a hair over 12 inches. Between the point of the central lobe and the base of the leaf, where it joins the free stem, it measures about 8⅞ inches.

Jeanne L. Clark, Canton

• *The leaf which you found is indeed a large one but unfortunately, we do not have any statistics on giant leaves and thus cannot advise you as to whether you have a record leaf or not. The texts usually describe the size of maple leaves anywhere from 3 to 8 inches in diameter, depending upon the particular species.—C. F. Baar, Superintendent, Forest Investigations*

Old timer

Dear Editor: I have a place on Lake Sacandaga at Lake Pleasant. I have fished here for many years.

On September 25, I caught a large smallmouth black bass. It was 20 inches long and it weighed 3 pounds, 5 ounces.

In your magazine, I once read that you'd like unusual cases reported.

I am enclosing some scales from this fish. I caught the fish on a minnow.

Willard Hall, Westbury

• *The bass (20 inches, 3 lbs., 5 ozs., September 25, 1960, Lake Sacandaga, caught on minnow) is indeed an unusual one. The scales show it to be at least 15 winters. As commonly happens with very old fish, the growth rate has slowed down so that there is a chance that age might be greater without detectable winter marks being formed. Age of 15 winters is very close to the maximum life span recorded for smallmouth bass.—John R. Greeley, Chief Aquatic Biologist*

Fallen chestnut

Dear Sir: Enclosed is a photograph taken on my farm at Franklin, New York showing the top branches of an American chestnut tree that had fallen. I estimated its height at 25 feet.

We did not know the tree existed until the day before when a tree planter told us about it. A large thorn apple completely enveloped the lower half. My son went up with an axe to chop away the obstructing thorn apple branches around the trunk of the chestnut. He evidently did the job well and the next morning, before leaving for New York, we both went up the hill to see the chestnut tree. That was when we discovered it had fallen down during the night. The thorn apple had been holding it up.

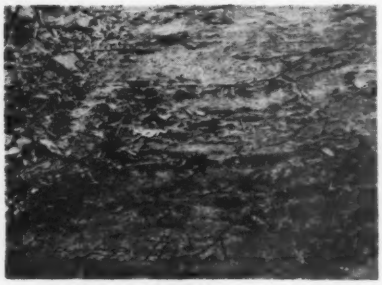
I don't know anything about the chestnut problem beyond the existence of a blight and the rarity of the tree. I'm sending this along for your files.

Maurice G. Postley, Hicksville

• *Thank you for your kindness in bringing the chestnut tree on your farm at Franklin to our attention. The light colored stems in the picture of the treetop are the unopened male flower clusters.*

This flower production is quite a common event when a severe injury to the bark prevents downward movement of the carbohydrates manufactured by the leaves. With the chestnut it usually means impending death of the stem from a chestnut blight canker. Many burs will be produced, but for lack of another tree nearby to provide different pollen, there will be no true nuts formed.

Isolated trees will often reach even larger size before they become infected with the blight-causing fungus. We still hope that we may find a tree highly resistant to the blight. Your report and the reports of others will make it possible to examine many likely trees.—Ralph H. Smith, Cons. Biologist



Hoax

Dear Sir: I am enclosing photos of purported Indian petroglyphs located in a wooded area near Burlingham, Sullivan County. When I last visited the area it was owned by a Mr. Harris.

As for size: The eagle is 9½" from wing tip to wing tip, the bear 7" high, the group with the squaw and horse and rising (or setting) sun is 27" long, and the group with the dog (?) and travois is 26" long. An overall shot of the entire rock is included to show the positions of the various groups. Eagle and bear are near the top of the rock.

I would appreciate, if possible, your opinion as to the authenticity of these petroglyphs and their meanings.

Harold Gabriels, Bergenfield, N. J.

• *I have examined the clear photographs of the petroglyphs which accompanied your letter and find that almost none of the figures correspond with petroglyphs of established authenticity in the Northeastern area of the United States.*

The New York State Indians did not use the tipi at any time or the horse except in a very limited way in late historic times. The horse travois, insofar as we know, was never employed in this area.

In addition to these glaring discrepancies, one can point out a considerable number of other elements in the figures which are non-Indian but represent the prevailing white man's stereotype of Indian culture.

I, therefore, have no hesitancy whatsoever in concluding that these petroglyphs are spurious and of recent white man's manufacture.—William A. Ritchie, State Archeologist

Canoes and outboards

Dear Sirs: I was very pleased to see the letter about motorboats, small lakes and unprotected rowboats and canoes and the reply from the Director of the Motor Boat Division. I would like to add my opinion and am sending this to you, hoping you can forward it.

My husband and I have spent three very happy vacations at Forked Lake transporting our camping gear to the campsite by canoe. Neither of us are expert canoeists but we can swim. However, our tent, cookstove, etc., cannot. On our second trip, we had a three-month-old baby with us. On our third trip, when she was two, her one-year old sister came, too. Both were non-swimmers. This time, the speed of the motorboats and the owners' attitude toward canoes ("Get that thing out of our way") annoyed and frightened us. This year we did not go, but friends who did, report that conditions, from a canoeist's viewpoint, are sad indeed.

We enjoy canoeing anr camping and hope to take our children into real wilderness when we are experienced enough and they old enough. However, I don't enjoy the thought of fending off the speed demons 'til then. Also what of the people, often youngsters like Scouts, who travel on those lakes as part of the regular canoe routes? I realize there are also people who like to drive their boats as fast as they will go and they also pay taxes and support our parks system. But the two sports don't seem compatible and I do hope a solution can be found.

I feel quite fierce about excluding the motors from at least the Adirondack Preserve because they don't seem in keeping with the "forever wild" atmosphere. They interfere, when they occur in numbers, with a type of recreation that cannot be found anywhere else in the State, while surely there are generally used boating waters, available to these people at no greater distance. Also I don't know how much damage the accumulation of oil does to the wildlife but it certainly makes the lake less attractive for swimming and wading (for babies) and for camp use.

Hildegard Mitchell, Rochester

• *The problems you raise in your letter have been the subject of much discussion during the past year. We are aware of the conflicts of interest in the use of the waters of the State. In addition to studies conducted by the Division of Motor Boats, a Legislative Committee is thoroughly analyzing the Forest Preserve and its forever wild aspects. We are sure that the report of that Committee's study which appeared in* THE CONSERVATIONIST *for October-November, came to your attention. It is proposed that mechanically-propelled boating be prohibited on the waters within designated wilderness areas of the Forest Preserve.*

This Division has dedicated its staff to educate the public in the use of the waters of the State so that common sense and courtesy may become the rule rather than the exception.—James J. O'Brien, Director, Division of Motor Boats

Pigeon problems

Gentlemen: I have a large house with a mansard roof, covering quite an area. Have had considerable trouble with pigeons nesting in the gutters developing into a health problem. Have been advised that the flutter flags used for advertising purposes by service stations have been used successfully in warding off pigeons. Can you advise as to where something similar can be obtained? Also, are there other humane ways to combat this real problem?

W. M. MacNaughton, M. D., Ft. Edward

• *The pigeons about our American cities are becoming more and more of a nuisance. Many methods have been tried to chase the pigeons from various buildings. The flutter flags mentioned have been successful at times. We can only suggest that you write to one of the major gasoline companies which have used such flags as decorations as they would probably be one of the best sources. Hardware cloth has been used to cover such gutters as you mentioned, although pigeons might nest on top of the hardware cloth unless this is arched high enough to make it difficult for them to perch or nest on. I believe the Jamaica Race Track has been successful in their anti-pigeon campaign with the use of moth flakes scattered periodically on those places where pigeons roost. This would be difficult to use on a sloping roof.*

Perhaps the best method would be to start a campaign discouraging people from feeding pigeons. The number of pigeons is directly proportional to the amount of food available for them and when we see so many hundreds of people feeding pigeons we are going to have thousands of them later on. A number of exterminator corporations have been investigating methods of, at least, discouraging the domestic pigeon, but, to date, I know of no real answer to the problem.—E. M. Reilly, Jr., Curator Zoology, State Museum and Science Service

Nice fish

Dear Sirs: We of this club would like to express our appreciation to the Department and all the individuals who are connected with the trout stocking program.

We have found everyone very courteous, and very punctual on delivery of the trout.

We also would like to stress the condition of the fish we received. Never have we had as nice fish as we have received this year. Their physical condition was excellent. The coloring was good and there was no evidence of disease.

We feel that you people should get a vote of confidence from the sportsmen of this State for the good work you are doing.

Manley E. Safford,
Sec., Farmers' Sportmen's Club, Hamilton

Co-operation

Dear Sir: I would like to commend you on the action of one of your Game Protectors, Richard Emperor, during the recent manhunt for four armed criminals that were holed up on the McKenzie Pond area after having burglarized the Cheeseman Sport Shop, Saranac Lake. His aid made it possible for us to quickly and safely catch the burglars.

Protector Emperor came to this Department with the news that a lock had been shot off a boat on McKenzie Pond and then went with us and gave us aid by his knowledge of the area and stayed with us for over 12 hours transporting prisoners from the other side of the pond to the police offices and the transporting of stolen property back to this office.

I cannot thank him, his aid or you enough for such co-operation between departments.

William J. Wallace,
Chief of Police,
Village of Saranac Lake

Grover Smith

Dear Editor: The inside cover of the Feb.-Mar., 1954 issue of THE CONSERVATIONIST carried a short article on the passing of Clint West of Olmstedville. In the article "Pete" Fosburgh mentioned my Dad, Grover Smith, of Adirondack, who worked with Clint and Grover Lynch as forest rangers.

Father died Feb. 26, 1960 after 12 years of retirement from the Department. Since, to date, there has been no mention of his passing in THE CONSERVATIONIST, I feel there must have been an oversight on the part of someone that this was not made known to you or your staff, as I know it has been the policy of the magazine to mention the passing of the "old timers" with the Department.

To my knowledge, father did not make any outstanding contributions to the Department but he served it faithfully as Ranger from April 20, 1923 (the year "Bill" Foss and "Ed." Littlefield started), until his retirement April 7, 1947.

Father had a good knowledge of carpentry and log work and for this reason was called on to help with, and often supervise, the construction of the open camps or lean-tos throughout the Adirondack high peak areas.

Clint West, Grover Lynch and Father worked as a team on these back woods projects and even teamed up when it came to retiring, as mentioned by Fosburgh.

M. P. Smith, Forester,
District 11, Lake George

• *We know of no "contributions" of a higher order than faithful service.—Editor*

No delusion

Dear Editor: We are very pleased to read Mr. P. W. Fosburgh's article, "Resurrection of a Stream," in the August-September issue of THE CONSERVATIONIST. Never having visited the Little Hoosick pilot watershed project personally, we found the pictures of some of the work that has been done there particularly interesting.

However, when we came to the last sentence where credits were given for the progress of the work so far, we were amazed to find no mention of the assistance given by the Rensselaer County A.S.C. Committee Those of your readers who were interested enough in this project to read Mr. Fosburgh's article would undoubtedly be interested in knowing the following: In the five years, 1955-1959, since the pilot watershed has been in operation, the Rensselear County A.S.C. Committee has spent over $16,000 sharing with farmers in the watershed the cost of conservation practices carried out on their farms under the Agricultural Conservation Program. As the federal government only shares the cost with the farmer under this program, at least another $16,000 and probably more was paid by the farmers themselves to install in the watershed these conservation practices which have materially contributed to the progress reported by Mr. Fosburgh in his article.

You might also be interested to know that since the passage of Public Law 566 the New York State A.S.C. Committee has had an established policy of co-operation with the Small Watershed Program. Each year we set aside a reserve out of our State allocation of funds for the Agricultural Conservation Program. This State reserve is then reallocated to counties with organized small watersheds to enable the County A.S.C. Committees of those counties to approve cost-sharing for conservation practices on farms in the watersheds over and above what they would be able to approve out of their regular allocation of A.C.P. funds.

A.C.P. cost-sharing approved by County A.S.C. Committees for conservation practices carried out by farmers in small watershed in New York State through the year 1959 totals a little over $1,000,000. We hope that we are not laboring under a delusion that this is a contribution of sufficient magnitude to merit official recognition when reports of accomplishments on small watersheds are being disseminated to the public.

A. S. Loucks,
Program Specialist,
U. S. Dept. of Agriculture,
A.S.C. Committee,
Syracuse

• *We are pleased to learn from your letter of October 6 that Mr. Fosburgh's article, "Resurrection of a Stream," was so well received, but are regretful of the inadvertent omission of credit to the A.S.C. Committee for its important role in this co-operative pilot watershed project.—Editor*

Oystershell scale

Dear Sir: For the past forty years, our lilac tree has leafed and bloomed beautifully. About a week ago, I noticed the leaves were suddenly turning brown. Monday, I checked the tree, thinking it was due to my male dog, whose urine has been very strong.

I was stunned to find the bush looking like a silver birch from the ground up. Every bit of it was covered with white.

Helen Needham, Brooklyn

• *The lilac twig specimen you submitted with your letter was found to be heavily infested with a common scale insect, the oystershell scale,* Lepidosaphes ulmi.

The most recently published information on this recommends the following controls: Remove and burn heavily-infested branches. Dormant applications, using either 11 gallons lime sulphur, four gallons dormant oil or one gallon DN per 100 gallons of water, are effective. Two or three applications at 10-day intervals (starting at apple blossom petal-fall time) using either 2 pints 50 per cent malathion emulsion, 2 quarts 25 per cent DDT emulsion, 4 pounds 25 per cent malathion powder, 2 pounds 50 per cent DDT powder or ½ pound Dieldrin per 100 gallons of water may be required to control crawlers which hatch from under the scale coverings.

All spray materials here mentioned can be purchased at lawn and garden supply stores. Follow closely the directions given on the container. The materials recommended for dormant application will stain. Do not allow them to come in contact with painted surfaces.—William E. Smith, Forest Pest Control Foreman

Credits

First cover, fourth cover, Dr. Vincent J. Schaefer; second cover, pages 6, 7, 24, 25, 40, H. Wayne Trimm; 4, Trautmann Studio, Malone; 5, 11, Roy Irving; 8, 10, 16, Nick Drahos; 9, Aerial Surveys, Drahos; 12, Irving, Trimm; 13, Irving, Trimm, Drahos; 14, Harris & Ewing, Washington, D. C.; 17, Earl McGuirk, Drahos; 19, N. Y. S. Museum; 28, A. R. Blanchard, Owego, Drahos; 30, Blanchard; 31, Irwin H. King, McGuirk; 32, McGuirk; 33, Whiteface Mt. Authority; 34, Buffalo Courier-Express, Irving; 36, Jim Kelly; 37, Ed. Kurka, Fred Oettinger; 38, L. S. Nelson; 39, R. E. Kerr, Trimm; 41, Trimm, Sports Fishing Institute; third cover, Clayt Seagears.

Pond pets

Dear Sir: I read with much interest your fine article on farm ponds in last month's magazine. I was especially interested in your choice of fish for stocking.

I have a cabin in the Bristol Hills, near Honeoye Lake, with three acres of land. I had a pond dug three years ago, about 200 feet long by 75 feet wide. It is about six feet deep at its deepest point. I was mainly interested in a water supply for fire protection. Since I do some fishing up around there, I put in four sunfish, a dozen large silver shiners, a dozen or so large creek chubs, (we call them horned dace) and about a half a dozen good-size rock bass. The first spring, the sunfish spawned two or three times and I was afraid I was in for trouble since I didn't have any black bass in there. However, something is taking care of a lot of those small sunnies and I suspect it is the rock bass, who, by the way, have also spawned this spring.

I sowed a couple of pounds of red-head grass seed the first spring. It grows close to the bottom and apparently takes care of the oxygen problem since I have never lost a fish in the winter and we get some pretty thick ice up here.

We feed these fish regularly through the summer—oatmeal and raw, ground beef a couple of times a week, but their favorite is grasshoppers and worms. The chubs and shiners are like trout in their feeding habits. It is great sport to watch two and sometimes three of them jump clear of the water for the same bug thrown on the water. However, the real fun is to watch how my 13-year-old son, Bill, Jr., has coaxed the rock bass to feed from his fingers. They will jump for a worm held four inches above the surface of the water.

The only fishing we do is what we call "fishing for strikes." We use a fly rod with the hook removed. Not much in the frying pan but loads of fun and a good way to improve one's technique.

Bill Burnett, Rochester

• *Judging from your letter, the fish in your pond are the family's pets. I gather you are more interested in observing fish behavior than in harvesting them. We certainly have no quarrel with this type of pond management provided the owner is not really interested in maximum angling success. However, it should be remembered that the State Conservation Law requires that the pond owner obtain a permit before stocking or restocking a pond (pond owners automatically receive stocking permits when their order is filled by the United States Fish and Wildlife Service through the local Soil Conservation Service office). The purpose of the permit is to insure that no fish will be stocked in drainage areas where they might impair the quality of present fishing.*

Many pond owners in the State have stocked their ponds with wild fish, usually the brown bullhead. Aside from the fact that this practice is illegal, the choice of the bullhead is unfortunate, especially when stocked with trout. Bullheads frequently overpopulate a pond; they then begin to root around the bottom for insects partly buried in the mud, as a result the water becomes very muddy. Growth and reproduction of other species is usually poor in such muddy ponds.

You were wise not to include bullheads in stocking your pond. Unless clean gravel is present, the creek chubs will probably not reproduce. The name "silver shiner" is applied to three or four different species in this State; some of these may reproduce in farm ponds, others do not. Common sunfish and rock bass reproduce successfully in at least some New York ponds—often too successfully. Your pond may become overcrowded with sunfish and/or rock bass in a few years. If they do overcrowd, don't hesitate to use a chicken-wire trap to thin out the population, provided you have a pond-owner's license.

For further information on this, it's suggested that you contact the Conservation Department's District Fisheries Office in your area—(2130 Scottsville Road, Scottsville, N. Y.).

It is obvious from your report that you and your family are getting a lot of enjoyment out of your pond.—Henry A. Regier, Research Assistant, Dept. of Conservation, Cornell University

St. Lawrence turkey

Dear Sir: While traveling in St. Lawrence County, around May 8, I saw a wild turkey running through the woods.

I would like to know if there are any turkeys stocked there?

Jack E. Swenney, (no address)

• *We did not find an address on your recent letter, but we are hoping that you will read this copy of* THE CONSERVATIONIST.

We have made no releases of wild turkeys as far north as St. Lawrence County. The nearest release point used by the Department was in central Oswego County which is probably too far away to explain your sighting.

If you can supply additional details on where within the country, you saw the wild turkey, one of our Department field men could check more closely on the origin of this bird. — Charles Mason, Conservation Biologist

Courtesy

Dear Sir: Last Sunday afternoon we had the real pleasure of visiting the Bramley Mountain Fire Tower in the Catskills and I must say that it was gratifying to see the genuine interest the Observer in charge must have for his responsibilities. The place is as neat and clean as the best of parks. How refreshing to find a public site with no beer cans dotting the area!

Beyond the manner in which the place is maintained, the Observer went out of his way to accommodate us. His interest was much appreciated.

The view from the tower is just as good as any in the Catskills—perhaps better since it looks down on the finest real estate in N. Y. S.; i. e., Delaware County. Perhaps more appropriate identification at the highway would stimulate public interest. Some people do not know what they are missing.

Herb More, Oneonta

• *We wish to thank you for your comments occasioned by your visit to the Bramley Mountain Fire Tower.*

We are greatly pleased to hear such a glowing report not only of the general cleanliness around the fire control facilities at Bramley Mountain, but also of the courteous manner in which Mr. Aitken has treated the visitors at the mountain top. — Abraham George, Jr., Supervising District Ranger

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Cool, man!

Gentlemen: As in the photo enclosed, you can painly see how our first ice fishing trip ended.

The time was January 10, 1960. The place —Oneida Lake, out of Lakeport. We had spent a day fishing on the lake—the lazy man's way—driving out!

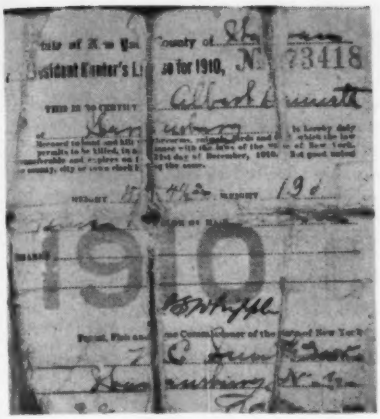
The wind began acting up as we were heading back, making visibility poor. We hit the shoreline about a mile north from where we had driven out. So driving back, looking for the Lakeport road, we hit it—a freshly frozen creek. Luckily enough, it was shallow and no one was injured, other than our pride and a much thinner wallet.

This has taught us quite a lesson that we'll never forget and those that see this will stop and think of whether 20 minutes or so make that much difference on the ice.

Joseph Soboleski, Syracuse

P.S. We didn't have any fish for Friday.

• *Oneida Lake is not only one of the most productive bodies of water in the State, but one of the most treacherous, and this obviously goes whether it is summer or winter.—Editor*



Licensed hunter

Dear Editor: As you know, effective October 1, 1960, an applicant for a hunting license was required to present a previous year's license. Quite aware of this new provision of the law, Mr. Albert Bennett, 28 Stewart Avenue, Glens Falls, N.Y., appeared at our sales counter this fall and presented the hunting license (pictured above) for the year 1910, Serial #73418. Mr. Bennett was 16 years of age, when he procured this license—his first—on the 22nd day of January, 1910. It was issued by Mr. Herbert Smith, Town Clerk, Town of Warrensburg, who later became Sheriff of Warren County. It was countersigned by H. W. Whipple, Commissioner of Forest, Fish and Game of the State of New York.

Mr. Bennett is, of course, 66 years of age at the present time and is planning on a full fall hunt, procuring both a big game and the regular hunting license, which he informed me he has done every year since 1910.

F. L. DuCuennois,
District Game Protector,
Glens Falls

Dough balls

Dear Sir: In your Aug.-Sept. issue, Mason C. Ward inquires about dough balls. We have had the same problem; if you ask ten fishermen how, you get ten different answers. We have tried cotton batting, but the problem there is to get it separated before putting it into the mixture; if the threads are not fine, they will not blend with the meal.

Our most horrible experiment was to cook the corn meal according to the recipe on the box for corn meal mush and then mix it with flour. We were up to our elbows in a gummy mess which we could not put on the hook because we could not get it off our fingers.

Among the other recipes we were offered and tried, were various ones involving sugar, molasses, and/or honey. Don't use these; the sweets dissolve in the water and so goes the dough ball. We have not yet tried tobacco juice.

Regarding boiled potatoes, we have tried this, but they tend to fall apart even if only half cooked. Fellow fishermen say that French fried potatoes are better, as the crust keeps them together. Another carp bait is cooked corn kernels threaded on the hook like beads. Dough balls are better, though, because they cover the hook well, and here is a good recipe:

Six tablespoons of corn meal, 3 of flour and 3 of pablum or other instant baby cereal (for a double batch, use heaping measures). Mix this dry in a bowl; then add water little by little until you can form it into a ball. It should be moist all over, but not dripping or soupy. Put this ball into a small muslin bag (salt bags are good) and tie it loosely shut. Drop this into a pot of boiling water and let it boil for 15 minutes.

Remove the bag from the pot and empty the dough ball into a bowl. Cut it apart with a spoon. When it is cool enough to handle, drop in a teaspoon of maple flavoring or vanilla or cinnamon. Work with the fingers until the flavoring is mixed throughout. At this point, roll a small piece between the fingers to determine if it sticks together; it should feel slightly gummy but will not come apart. If too wet, add a little flour; if too dry or crumbly, add a little water. Form one big ball and put it in a plastic bag or wrap in wax paper. Keep in the refrigerator until you go fishing; it will keep for at least two weeks if tightly wrapped.

Incidentally, bullheads will bite on dough balls, too.

Since the Wallkill River is full of carp and you can eat only so much of it, we have been hard put at times to know what to do with it. We have finally found a good solution. We put two quarts of water in our big pressure cooker and on the trivet set two pans full of scaled and cleaned carp—leaving the heads on—and pressure cook it for half an hour at 10 lbs. pressure. This makes all the bones except very big ones as soft as those in a tin of salmon. We take out the heads and let the chickens have those. We flake the rest and pour the water over it, add some salt, and store it in the refrigerator. This is a ten-day supply of food for one beagle and four cats.

Frankly, we think the way to keep the carp population down is not to poison them, but to interest people in catching them. One way is to publish recipes using carp. Another way is to advertise the fact that the carp is a game fish. Even the small ones put up quite a fight, but if you hook onto a big one, it will take a struggle to land him.

Mrs. Henry Wittstadt, Pine Bush

Spruce gum caulk

Gentlemen: I have a small but most interesting problem which I trust you will be able to help me solve.

I have acquired a 15-foot Indian-made birch bark canoe which, following the custom of canoe building, the Cree Indians used spruce gum to waterproof the joints and seams in the birch bark.

I have tried, unsuccessfully, to obtain any quantity of spruce pitch nor can I find the names of persons who might advise me.

The canoe is in excellent usable condition and I wish to maintain it in such manner.

Can you advise me where perhaps in New York State, I might procure this resinous product or, in case I am mistaken about the type of pitch these Indians used, can you tell me the proper name of the pitch.

Clarence Martin, Amsterdam

• Regret to say, we're fresh out of spruce pitch and knowledge of sources of supply. But drop a line to W. E. Petty, District Forester for the Conservation Department, Raybrook. If anyone in the North Country knows, we'll bet on Bill.

But here are a few ideas if no spruce pitch is forthcoming: White lead and varnish, mixed to a paste. Builders of the famous Adirondack guide-boats used it; hardens like iron.

Or how about some of the polyesther resin products on the market?—R. B. Miller

Beaverkill trout

Gentlemen: I wish to congratulate your Department on the excellent trout fishing in the Beaverkill between Cooks Falls and Roscoe. On a recent vacation trip of two weeks at my place in Cooks Falls, I released well over 200 legal trout. I believe the 5 trout limit in this stream is very successful as many of these fish were brightly colored and had been in the stream at least over the winter.

Can you tell me why Cooks Falls Brook is no longer stocked by you? This is one of the few unposted brooks in the area and the pressure on it is great. Thank you again.

Nathaniel Zellermeyer,
Long Branch, N. J.

• We are very pleased to receive reports, such as yours, from a satisfied fisherman. Many sportsmen send in their complaints but few write us of the good catches they have made.

The Beaverkill is one of New York's better streams and approximately twenty miles of it are stocked annually with some 40,000 brown trout yearlings of legal size or better. The fishing pressure is heavy, as you know, but this stream appears to stand up very well which would indicate the management policy to be about right. Our biologists find that the Beaverkill has a considerable winter carry over of trout and your belief that the larger, more brightly colored trout had spent at least one winter in the stream is probably correct.

Cooks Falls Brook, of which you make inquiry, has been posted or partially posted since 1941, according to our records. This stream was apparently free of posters in 1956 and it was recommended for stocking in 1957. When our hatchery personnel delivered fingerling trout for stocking in the fall of 1957, they found that the stream was again posted, and no fish were planted.

It is not Department policy to stock posted waters and the stream is not presently recommended for stocking. If assurance can be given that Cooks Falls Brook is not posted and is open to public fishing, I am sure the District Fisheries Manager for that area would give it fair consideration.—K. B. Nichols, Supt. of Fish Culture

Notes for the Record

IT seems appropriate on this Thanksgiving Day of 1960 to write down in one place for the record some of the miscellaneous notes contained in a great stack of outdoors-type stuff collected over the years at random and other places.

BOBCAT—Two Massachusetts hunters ran a bobcat for two hours before it was treed. During the entire chase, the cat carried a cottontail rabbit which it carefully buried in the snow before it climbed the tree.

The average weight of 113 adult New England bobcats was a few ounces more than 18 pounds. Females averaged 15 pounds, six less than males.

Heaviest recorded New York bobcat weighed 44 pounds (reasonably authenticated). It was taken in the Adirondacks (Franklin County) in 1939 and may have belonged to the larger northern race of bobcats (*gigas*).

LYNX—For years we had believed the big-footed, long-legged Canada lynx extinct in New York (last authenticated record concerned a pair killed near Ithaca in 1907). We said so on these pages (THE CONSERVATIONIST, December-January, 1951-52) and we made some sketches to show the difference between lynx and bobcat.

Several months later—on Thanksgiving Day, 1951—Harold King of Ft. Ann went deer hunting on Battle Hill, east of the southern end of Lake George in Washington County. There he saw what he thought was a bobcat chasing a snowshoe rabbit and he shot it. Back home, King compared his trophy with the lynx sketches in THE CONSERVATIONIST, excitedly exclaimed that he had excavated the extinct and lugged the thing to our office.

King's lynx was a fat, old (upper incisors missing and canines badly worn) female, weighing 27½ pounds and containing (in large hunks) a freshly-killed snowshoe rabbit. She was 37¾ inches long from nose to tip of tail bone (tail was 4⅜ in.); 65½ inches front toe to hind toe (legs outstretched), had a reach of 41½ inches, could have worn a 15-inch collar around her chest, had an 11⅜-inch waist and stood 19 inches at the shoulder. Shown opposite is a sketch of her head, complete with 2-inch ear tufts.

"Feb. 3, 1952. Went to an extensive swamp area west of Route 4 about three miles north of Ft. Ann today to look at what were reported to be a series of mountain lion tracks in the snow. Tracks were well-blurred by thaw but finally found one clear impression in a spruce blow-down. Track measured 3⅞ in wide x 4½ in. I'm certain it was a lynx, probably a front foot track. I believe this swamp is in same area that King shot his lynx last year."

Later, the record of a 1928 lynx was sent to us. It was a clear photograph of one killed on Hogback Mountain in the eastern Adirondacks, Essex County.

Note for future "Inside On Outdoors" cartoon: If you drank like a fish, you'd die of thirst for the simple reason that water may never enter the stomach of a fish. Show how gullet acts as a closed valve until food presses against it. It opens just enough to admit the food, then closes tightly behind and around it like an elastic sleeve.

DEER—The shoulder height of 201 average Adirondack doe deer averaged a shade over three feet; of 73 bucks, the average was 37.3 inches.

BEAR—In November, 1956, Joe Kimpton of Saranac Inn, hunting in the Paul Smith's region, shot a 300-pound male black bear while it was feeding on the freshly-killed carcass of a half-grown cub (weight would be around 60 lbs). The cannabilistic male had eaten all but the head and forequarters of its apparent victim.

ELK—On Oct. 30, 1946, a large bull elk weighing 528 lbs. was killed by a surprised visiting deer hunter near Split Rock Lake on the North Woods Club's Adirondack wilderness property, Essex County. No one knows where this wapiti came from, how long it (or its parents) had been there or what became of at least one other elk whose tracks were seen later in the same area.

MOOSE—During the summer of 1950, a bull moose and at least one cow were reported at various Adirondack points. They seemed to be slowly heading south. Finally on Oct. 4, a bull moose appeared on the fifth fairway of the Troy Country Club. He left without replacing his divots. Two days later I got a brief movie flash of this beast mucking around in a Rensselaer County swamp east of Albany. On Oct. 11, *The Troy Record* published a photo of the big animal in a field near Rutland, Vermont. On Nov. 6, 1956, *The Albany Times Union* ran a picture of a bull moose which had hung around Shoreham, Vt., (near Ticonderoga, N. Y.) all summer. It was tame enough for a man to approach. It had a curiously shaped bell (moose goatee) and smallish, twisted antlers. I am reasonably sure it was that same 1950 beast six years older. Anyway, this loose moose is as mysterious as that uppity wapiti.

COUGAR—As far as I can discover, the last authenticated record of the taking of a cougar (mountain lion, panther, puma, painter) in New York concerned the 150-pound male which was shot Sept. 2, 1893, on Stone Lane near the Schenectady city limits. According to *The Albany Press and Knickerbocker* which reported the event two days later, it was believed that the big cat had "strayed from the Adirondacks."

Three years previously, the State made its last panther bounty payment ($20) for a cougar killed Jan. 6, 1890, by one A. P. Flansburgh in Day Township, Saratoga County.

Since then, there have been thousands of "sight records" of panthers in New York. But despite the fact that a half-million deer hunters now march and counter-march through the State every year, no carcass is ever produced for the record. Nor has there been an authenticated track in mud or snow or anywhere. The same goes for the whole Atlantic seaboard north of Florida.

BEAVER—"March 15, 1939 I weighed on Express Co. scales a 72¼ lb. beaver today. She was an old female trapped near Duane, Franklin County."

OTTER—The live weight of a big dog otter from the South Branch of the Moose River was 28½ lbs.

"June 24, 1946—Early yesterday we pulled out an old (April 8) issue of *Time* magazine, tore it down to 32 pages inside the covers and started to paste thereon the dummy of what long we have hoped will become the new Conservation Department magazine. The happy directive to get going on this has just come from P.B.D. (Perry Duryea, then Conservation Commissioner). He needs for the Governor to see tomorrow a complete dummy of the kind of book we propose to produce. We named it *The New York State Conservationist*. This is a tongue-twister, for sure, but if the magazine is to be a tool of conservation education, it's time more people got used to the word. Anyway, this is truly an exciting and productive weekend. Wish we could look into tomorrow."

—CLAYT SEAGEARS

The Cats of New York
-Now and Then

Bobcat
-fairly common locally

Canada Lynx
- very rare

Cougar
-presumed long extinct

DESPITE HUNDREDS OF "EYE WITNESS" REPORTS OF MOUNTAIN LIONS IN NEW YORK EVERY YEAR, NO CARCASS HAS BEEN PRODUCED FOR THE RECORD SINCE SEPT. 2, 1893, WHEN A 150-LB. MALE WAS KILLED IN SCHENECTADY COUNTY.

THE LAST KNOWN REDUCTION OF A CANADA LYNX TO A STATE OF *CORPUS DEFUNCTUS* IN N.Y. OCCURRED ON THANKSGIVING DAY, 1951, WHEN A 27½-lb. FEMALE WAS SHOT ON THE S.E. FRINGE OF THE ADIRONDACKS, - WASH. Co.